ESTABLISHED IN 1872

# PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCIX, No. 25 — PAPER — Thursday, December 20, 1934

# U. S. Census of Paper Manufactures: 1933

## Production of Paper and Paperboard Amounted to 9,190,017 Tons for the Year as Against 7,997,872 Tons in 1932—Employment Increased Rapidly During Spring and Summer and Decreased Somewhat in the Fall but Remained at a Much Higher Level in December Than Attained in June or Any Month of 1931

Wage-earner employment in the manufacture of paper in the United States increased rapidly during the spring and summer of 1933 and decreased somewhat in the fall, but remained at a much higher level in December than that attained in June of the same year or in any month of 1931 (the last preceding census year), according to a preliminary report compiled from data collected in the Biennial Census of Manufactures taken in 1934, just released by Director William L. Austin, Bureau of the Census, Department of Commerce. This report shows 76,153 wage earners on the pay rolls in March, 81,638 in June, 97,614 in September, and 94,046 in December.

The production of paper and paperboard in the United States in 1933 by establishments engaged primarily in the manufacture of these products amounted to 9,190,017 tons, valued at $521,552,577 (at f.o.b. factory prices), as against 7,997,872 tons reported for 1932 (value not reported for that year), and 9,381,840 tons, valued at $631,106,209, for 1931. The total for 1933 is made up as follows: Paper and paperboard produced for sale, 6,877,131 tons, valued at $404,403,910; produced and transferred to other plants under the same ownership, 1,266,038 tons, $60,308,368; produced for use in the same plants, 1,046,848 tons, $56,840,299. (See Table 3.)

The 1933 production was distributed by kind and quantity as follows: Standard newsprint, 928,332 tons; hanging paper, 66,137 tons; catalog paper, 62,954 tons; poster, novel, news-tablet, lining, etc., 155,673 tons; book paper, uncoated, 1,080,196 tons; writing paper, 478,356 tons; cover paper, 12,697 tons; wrapping paper, 1,440,029 tons; tissue paper, 406,760 tons; absorbent paper, 79,832 tons; building paper, 328,275 tons; other paper, 74,486 tons; paperboards, 4,076,290 tons.

Statistics for 1933, with comparative figures for earlier years, are given in the following tables. All figures for 1933 are preliminary and subject to revision.

TABLE 1.—SUMMARY FOR THE INDUSTRY: 1933, 1931, AND 1929

| | 1933 | 1931 | 1929 |
|---|---|---|---|
| Number of establishments [1] | 598 | 650 | 685 |
| Wage earners (average for the year) [2] | 87,225 | 87,683 | 103,320 |
| Wages [2] | $81,090,682 | $104,041,810 | $140,398,374 |
| Cost of materials, fuel, and purchased electric energy [3] | $311,766,966 | $384,420,395 | $574,607,978 |
| Products, total value [4] | $560,962,625 | $684,971,197 | 0967,186,026 |
| Paper and paperboard, total [4] | $464,712,278 | $563,320,889 | $817,024,663 |
| Made for sale | $404,403,910 | $498,202,661 | $715,145,798 |
| Made and transferred to other plants of same companies | $60,308,368 | $65,118,228 | $101,878,865 |
| Products other than paper and paperboard | $96,250,347 | $121,650,308 | $150,161,363 |
| Value added by manufacture [5] | $249,195,659 | $300,550,802 | $392,578,048 |

[1] In a few cases combined returns were made for two or more mills operated by a single establishment. The numbers of mills operated were as follows: 1933, 608; 1931, 666; 1929, 702.

[2] Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners can not, therefore, be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1933 and those for earlier years, the possibility that the proportion of part-time employment varied from year to year should be taken into account.

[3] Profits or losses can not be calculated from the census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[4] In addition, paper and paperboard to the value of $56,840,299 in 1933, $67,785,320 in 1931, and $86,276,477 in 1929 were produced and consumed in the same plants in the manufacture of converted paper products.

[5] Value of products less cost of materials, fuel, and purchased electric energy.

TABLE 2.—WAGE EARNERS, BY QUARTERS: 1933 AND 1931

(The figure given for the final month of each quarter is the total number of wage earners on the payrolls for the week including the fifteenth day of the month, or for some other representative week in the month.)

| Census year | March | June | September | December |
|---|---|---|---|---|
| 1933 | 76,153 | 81,638 | 97,614 | 94,046 |
| 1931 | 89,620 | 87,791 | 86,547 | 83,731 |

TABLE 3.—PAPER AND PAPERBOARD—PRODUCTION, BY KIND, QUANTITY, AND VALUE: 1933 AND 1931

| Kind | 1933 Quantity (tons, 2,000 lbs.) | 1933 Value | 1931 Quantity (tons, 2,000 lbs.) | 1931 Value |
|---|---|---|---|---|
| Paper & paperboard, aggregate | 9,190,017 | $521,552,577 | 9,381,840 | $631,106,209 |
| Produced for sale | 6,877,131 | 404,403,910 | 6,939,706 | 498,202,661 |
| Produced for transfer to other plants of same companies | 1,266,038 | 60,308,368 | 1,259,025 | 65,118,228 |
| Produced for use in same plants | 1,046,848 | 56,840,299 | 1,183,109 | 67,785,320 |
| News print and similar papers, total | 1,213,096 | 47,836,504 | 1,514,543 | 86,143,284 |
| News print, standard, in rolls and sheets | 928,332 | 32,295,982 | 1,203,263 | 63,654,376 |
| Hanging paper | 66,137 | 3,346,080 | 85,974 | 5,800,106 |
| Catalog paper | 62,954 | 4,249,752 | 89,382 | 7,064,325 |
| Poster, novel, news-tablet, lining, etc. | 155,673 | 8,034,690 | 135,924 | 9,624,477 |
| Book paper, total | 1,080,196 | 83,244,346 | 1,208,674 | 120,282,799 |

*(Continued on page 21)*

# Demand for Paper Moderately Active in Chicago

## Nearness of Inventory Period Affects Practically All Standard Grades of Paper—While Bond Papers Are Moving Slowly, Other Grades of Fine Paper Are Fairly Steady—Kraft Paper Market Comparatively Dull, With Exception of Specialties

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 17, 1934.—Close proximity to inventory period has brought a corresponding slackening in the local paper market. Firms held closely to their commitments are holding back until after inventory and the result is being felt locally. However, the feeling persists that the paper industry is going forward arm in arm with general business betterment demonstrated by many facts and figures. The pronouncement this week by General Dawes that May would find us well on the way toward real business revival has been anticipated by many close to the local paper market.

One of the lines reported as feeling the effects of nearness to inventory period is kraft, where dullness is the stated characteristic of the market, though the price situation continues fairly satisfactory. Specialties, however, have been of material assistance to the kraft jobbers locally in getting through the present slow period. The chip board market is reported comparatively less impressive, the remainder of the board line said to be about the same.

Fine papers continued to make a fairly good showing though here, particularly in the bond group, the nearness to inventory period was also said to be pronounced. Newsprint was looking to 1935 for definite improvement and showing a reported better business on the strength of it. Ground woods shared in this improvement though pre-inventory inactivity was also reported near at hand. The waste paper market showed little change, several factors obviously conspiring to keep commitments at a fairly low level.

### National Printing Campaign Proposed

The proposal to sponsor a national campaign to increase the use of printing throughout the United States, voiced at a recent meeting of the Ntaional Printing Equipment Association and supported by the Graphic Arts industry, trade publications and other interests, is creating quite a bit of attention among the paper executives of Chicago. Such a campaign, it is understood, would be undertaken in a cooperative sort of a way and in a definite effort to increase the understanding and value of printing among industries and individual consumers. The paper industry is of course tremendously interested in such a stimulation inasmuch as the consumption of paper would be materially increased through such an impressive effort.

While the idea is being discussed and while local printing and allied trade groups are being asked to sound out their members as to the program, leaders in the movement are pointing back to 1907 as proof that the job was done once and can be done successfully again. Facts stated about that campaign further indicate the importance of the paper industry in such a program. In 1907 it is reported that $3,000,000 was raised for the task not only of educating the industry itself but also to convince the public of the investments accruing from proper and increased use of printing. At that time the printing industry raised one third of the impressive total while the supply industries raised a total of $2,000,000, one supply firm contributing $10,000 to the job. The further the program progresses into an actuality the more will the paper industry—as perhaps the most important supplier of all—be forced to review the 1907 effort and give serious thought to further cooperation next year.

### Occupational Tax Inaugurated

Chicago merchants — including all industrial concerns making "ultimate sales" to consumers—received a splendid stimulus to their efforts to show the 2 per cent Occupational Tax on all purchases when on Wednesday, December 12, the great State Street retail stores began to add the 2 per cent on each sale as a cost item. The move was heralded by the Mercantile Division of the Illinois Chamber of Commerce as a great boon not only to retail merchants but to jobbers and manufacturers, many of whom found their sales defined as "at retail."

While the move of this week primarily affected retail over-the-counter merchants it did set a precedent for the so-called inter-industrial sales. According to J. C. Spiess, chairman of the State Chamber's retail board, all buyers of industrial and business supplies are of course consumers of retail products. If these executives become inured to paying the 2 per cent on all over-the-counter sales they will not be surprised when the charge is also added on inter-industrial sales and on each invoice. Where a highly competitive situation exists which makes the effort to include the monthly charge in a hidden markup of merchandise decidedly futile, the chance to show the item on each sale is going to be very well received.

The final action of Chicago, which follows unification under the plan of showing the tax adopted by down state merchants months ago, received considerable impetus when the State Department of Finance ruled that merchants might be permitted to add the tax openly. To the paper industry in this city the new arrangement means thousands of dollars saved in their own sales, plus a much improved financial situation for the customers they serve in the retail field.

### News of the Trade

Norman Ventriss, of the Munising Paper Company, must take a lot of satisfaction in noting that the Chicago Chapter of the Direct Mail Advertising Club has now grown into a full fledged organization with four classifications of memberships and a working program. Mr. Ventriss did a lot of pioneering work to popularize the Direct Mail Advertising Club of Chicago. The four classifications of members include three groups from the producers, suppliers and educational fields, the latter including teachers and students interested in direct mail advertising. The suppliers classification is expected to include a number of paper jobber and mill representative executives from Chicago.

The Morgan Rag and Paper Company, Chicago, has leased for a term of years the entire two story building at the northeast corner of 21st and Morgan streets, containing 30,000 square feet of floor space to be used for warehousing purposes. Continued business development is reported as the factor necessitating the expansion.

The Heco Envelope Company has recently issued a revised booklet of postal information for direct mail users, through the Direct Mail Advertising Association.

"Take a Tip From the Post Office," is the interesting title of the Eastern Manufacturing Company's newest folder on Atlantic Bond, distributed in Chicago through the LaSalle Paper Company and Dwight Bros. Paper Company. The usual "windows" on the cover page are affixed to envelopes to invite further inspection and to further bear out the idea that the use of color in letterheads, as in postage stamps, speeds handling, minimizes errors and helps identification. A record file facsimile contains twelve color specimens of common office forms neatly indexed. The message of the printed word is accentuated by the object lesson afforded.

Certain branches of the paper industry will be interested to know that the National Code Authority of the Book Manufacturing Industry has opened a regional office in Chicago at 20 North Wacker Drive. The office is in charge of George P. Macknight, and will be equipped to service manufacturers in Illinois, Indiana, Michigan and Wisconsin.

Some new lines reported by Chicago firms include Thistlebloom, made by Strathmore and distributed locally by the James White Paper Company; Exmoor Bond, made by Byron Weston and distributed by Dwight Bros. Paper Company; and Beeswing Manifold, made by International and distributed by the J. W. Butler Paper Company.

H. J. Hermann, Inc., paper distributors, on December 1, opened new offices and warehouse at 1319 North Third Avenue, Milwaukee.

## Stabilizing Flow of Black River

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., December 17, 1934—In discussing contemplated construction of a huge reservoir near this city Mayor Harris declared this week that it will be beneficial as soon as it begins to stabilize the flow of the Black River. He said that all power owners on the river would benefit accordingly, minimum production, whether represented by electric energy or manufactured product, being increased by the additional flow made possible during drouths. There are seven electrical plants, 22 pulp and paper mills and many other industries which would derive benefits. It is claimed that the effect of the reservoir on production would be felt only during periods when the river flow reached a point where stored waters were necessary to increase the stream. Mayor Harris also claims that the stabilization of the river through the reservoir would increase the production of the municipal hydroelectric plant to a large extent. He claims also that the additional flow will eliminate the necessity of complete shutdowns in paper mills because of low water besides steadying production and employment.

## Central Ohio Paper Co. Leases New Quarters

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 17, 1934—The Indiana division of the Central Ohio Paper Company has closed a long term lease for 25,000 square feet of floor space in the building at 225-27 South Meridian street here, according to J. Landon Davis, vice president. The building now is being remodeled and renovated and will be ready for occupancy shortly after the first of the year.

Mr. Davis said the company will carry a larger stock of fine writing and book papers, enameled papers, cardboard bristols, tag board, covers and envelopes. It has been located in the Indiana Terminal Warehouse Company's building in South Pennsylvania street for several years. Increased business necessitated the change to larger quarters.

## Indianapolis Demand Expanding

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 17, 1934—A fair condition prevails in the local paper trade with demand showing gradual expansion in most lines and indications pointing to a lot of business during the coming year. There can be no doubt that all lines of business are becoming more active. Not that it has anything to do with the paper trade, but indicative of the trend, this past week the local branch of the International Harvester Company, received a tractor shipment of 47 cars, a solid train, and the largest single branch shipment the company ever had made. All the material goes to farmers in central Indiana and it all is sold. As another indication of trends, and this concerns the paper trade, a medicine company in northern Indiana has just shipped the first six of a 16-car consignment of calendars and almanacs. Each car contains 400,000 pieces of printed matter. A ruling of the post office department that second class mail could be directed to box numbers on rural routes decided the company to place direct mail matter in the hands of every rural patron in the United States. Nothing approaching these two instances have been seen in this territory for these many months.

Demand for newsprint here remains heavy and will for another two weeks at least. Advertising is certain to be heavy the week following Christmas as retailers seek to deplete their stocks prior to inventory. Lineage this December will be considerably greater than a year ago and it is bringing results since the dealers report an increase in business. Local publishers are somewhat disgruntled over the announcement of an increase in prices after the first of the year but they have found nothing to do about it.

Container demand continues good. There is no doubt that figures after the first of the year will show the container trade in this state to have bested last year considerably. At present most of the factories are working at nearly capacity and warehouse stocks are low. Prices are holding firm. Demand for tissues is seasonal, with the paper board market in a better condition. The coarse paper market also is displaying some strength.

## No Log Drive on Racquette River

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., December 17, 1934—Veteran lumbermen in this section are inclined to believe that the old time log drives on the Raquette River are past history. No drive is scheduled for next spring and the fact that many paper mills in Northern New York are using imported pulp is given as the reason for the passing of this event. Despite the extensive lumbering operations going on in this section of the Adirondacks it is a noticeable fact that tractor trains, huge motor trucks and railroads are being used in transporting the pulpwood to mills instead of the turbulent waters of the Racquette River. Veteran lumbermen like to recall the old days when some of the largest drives staged in this country passed through the rapids of the Racquette River. In those days woodsmen claim that the logs were so big that it was difficult to ride them and great risks were taken during the peak of the logging days. The lumberjacks were as colorful a group of workers as any in the country and it was a frequent occurrence for them to risk their lives for comrades. Among the concerns in Northern New York that continue to obtain pulpwood supplies from the Adirondacks are Finch, Pruyn & Co., Racquette River Paper Company and the St. Regis Paper Company. The former concern maintains an extensive tract at Newcomb where a large force of men are employed during the busy season.

# Activities of Wisconsin Paper Manufacturers

## Marathon Paper Mills Co., of Rothschild, Wis., Increases Production of Parafilm to Meet Growing Demand—Ahdawagam Paper Products Co., of Wisconsin Rapids, Signs Labor Contract—Reforestation Assisted by Survey of Nursery Plots

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 17, 1934—With new uses being developed for its recent product known as Parafilm, the Marathon Paper Mills Company, Rothschild, Wis., is stepping up production on this item to meet demands.

Parafilm originally was a process for waterproofing paper when applied between two sheets, and produced an ideal wrapping when thus compressed. During the past six months, the company found it could be made a self-sustaining film for which there are a constantly increasing number of uses. Experiments have been made for its use to wrap cheese and other small food items. The florist trade has found it greatly in favor for wrapping flower stems on corsages and other bouquets where waterproofing protection was needed. It is flexible, easily sealed, and still has a high resistance to moisture and water.

Use of Parafilm for surgical dressings also is one of the new possibilities on which the company is working. The adhesive character of Parafilm tape also brings it into use for wrapping grafts of woody plants. It creates a permanent splice quickly.

A high humidity type of Parafilm also is being developed to extend its uses where sunlight would otherwise affect its moisture-proof qualities. The tape has been used in place of ribbon for sealing packages, and has been manufactured in colors for this and other purposes. It has been found readily printable, and promises to become a product of considerable importance and utility. Industrial recognition is expected to open a wide field, and eventually a heavy tonnage.

### Paper Chemistry Institute Appointments

Five new appointments at the Institute of Paper Chemistry, Appleton, Wis., are announced by Dr. Henry Merritt Wriston, president of Lawrence College. John E. Spalding, with Oxford Paper Company, Rumford, Me., for the last three years, has been appointed research assistant. He holds a chemical engineer degree from the Massachusetts Institute of Technology. Herbert Becker Appleton, Wis., a graduate of the University of Wisconsin School of Commerce, has been named assistant treasurer.

J. E. Barthel, who has been employed with Oswego Falls Paper Company, Fulton, N. Y. since graduating from the University of Syracuse in 1933, will become technical assistant in the code testing department. He received a B. S. degree from the College of Forestry. The department of physics will have as its new research assistant Kenneth R. McDougal, with the General Electric Company for four years. He was graduated from the University of Wisconsin in 1928, and has been taking up post-graduate subjects recently.

The fifth appointee is Philip Nolan, who will be assistant to Dr. George Munro in the research division of the department of physics. He will receive his degree of doctor of philosophy soon from the University of California.

### Federal Forest Areas Surveyed

Reforestation will be helped by a survey of 11,000 nursery plots in the federal forest areas of the Lake States in which it was found that the white grubs which are the larva form of the beetle of the June bug type are responsible for destroying as high as thirty per cent of the young pine plantings. The work has been carried on by Professor Samuel A. Graham, of the school of forestry and conservation of the University of Michigan. He has been assisted by the research staff of the University of Minnesota, the United States bureau of entomology, and the federal forest service, and by details from the C. C. C. camps. Poisoning of the larva probably will be the means used to exterminate them, and experiments are now being conducted to determine the effect of the poison on both the insects and the trees. Fifty species of the insect have been found among the destroyers, but only a few species are abundant in any one locality.

### News of the Industry

Ahdawagam Paper Products Company, Wisconsin Rapids, Wis., signed a labor contract last week with the Pulp, Sulphite and Papermill Workers Union, local No. 195. The contract covers agreements on wages and working conditions. The company has been operating as a union plant for the last six months.

The Marathon-Menasha Mills credit union, organized among employees of the Menasha Products Company, Menasha, Wis., carton subsidiary of the Marathon Paper Mills Company, declared a dividend of six per cent to its stockholders. The union has been operating for one year.

Employees of various mills of the Marathon Paper Mills Company held their annual inter-mill bowling tournament at Wausau, Wis., Saturday, December 8. Large delegations from the plants at Wausau, Rothschild, Ashland and Menasha, Wis. were present. Twenty teams competed. The annual banquet following the bowling was attended by about 200 men and women, and the affair wound up with a dancing party. Roy Wescott acted as chairman.

A. E. Broughton and T. E. Xistris, of Broughton Systems, Inc., Appleton, Wis., paper mill engineers and dealers in the Broughton vacuum box valve controls, were injured in an automobile accident near Kaukauna, Wis., last week. Their injuries are not considered serious. Mrs. Broughton, who was in the car, died from her injuries, and Mrs. Xistris, also a passenger, is confined to the hospital with a skull fracture.

Monroe A. Wertheimer, president of the Thilmany Pulp and Paper Company, Kaukauna, Wis., and Mrs. Bess A. Frank, of New York City, were married last week in the municipal chapel at New York. Mr. Wertheimer is 71 years old, and Mrs. Wertheimer is 54.

## Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 19, 1934—The Government Printing Office has received the following bids for 2,000 sheets of cloth line paper: Reese & Reese, Inc., at $144.31 per M sheets; Barton, Duer & Koch Paper Company, $144.50; The Whitaker Paper Company, $140.70; R. P. Andrews Paper Company, $147.70; Mathers-Lamm Paper Company, $150.48 and $160.45, and Walker-Goulard-Plehn Company, Inc., $143.78.

# Ontario Paper Mills Run Ahead of Last Year

## Increase of From Five to Ten Per Cent Indicated In Production of Writing and Book Papers —Coated Papers Moving Into Consumption In Fairly Satisfactory Volume—All Grades of Tissues Consistently Active—Wrapping Paper and Paper Bags Steady

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 17, 1934.—The year in wholesale and manufacturing paper circles in Ontario is drawing to a close and the wind-up promises to be marked by quiet market conditions. The last two months have shown a gradual falling off in tonnage manufactured and sold and also in the distributing end of the industry. Most of the manufacturing companies, however, will likely record an increase over last year and the same may be said of a number of paper merchants, but not all.

Writing and book papers are maintaining a slight lead over last year but unless there is a greatly increased production and turnover during the present month it is not likely that the year will see a greater increase in business this year than from five to ten per cent. There has been a fair movement in coated paper of late and had this movement started in earlier in the year, 1934 would have made a really good showing in the better grade papers, such as coated stock. As it is, there has been a gradually increasing demand for coated papers and a definite trend in favor of the better grades of paper generally, although this has not been as pronounced of late as the trade counted on.

One department of the paper trade that is keeping up well is that of tissues, toilets and specialty crepe tissue lines, business in these lines having been consistently active practically all the year. There is also a fair demand for glassine, greaseproof and waxing lines, and the year in this department should close with a good record.

Heavy wrapping is steady and paper bags have been showing a slightly better record this fall. Box board is experiencing a continued demand, aggregating a pretty good total, and well over a year ago. Orders, however, are still in small lots. Paper box makers have been getting some fairly good business but the volume is small as compared with what it should be at this time of year.

The paper converting trade is none too brisk, general stationery lines having been quiet all fall. The papeterie houses have been getting some nice repeat orders for Christmas and the through-the-season business with them has been fairly good.

### Moore Corporation Doing Well

Moore Corporation, of which S. J. Moore, of Toronto, is president, is understood to have experienced better business since October as a result of seasonal improvement in industry and trade activity in the United States. The company is the largest manufacturer of sales books and interfolded business forms and not only are these products used by every type of business, but the six subsidiaries located in the United States cover the entire country. Tangible evidence of improved earnings of Moore Corporation was the recent payment of 50 cents per share on the common stock, the first distribution on this class of stock to be made since April, 1932. Directors have not committed themselves to resumption of regular dividends however.

### Hinde & Dauch at Capacity

A marked increase in earnings for Hinde & Dauch Paper Company, head office Toronto, is being predicted for the company when this year's business is closed. It is suggested in some quarters that net profits of $1 a share against 26 cents earned in 1933 may be shown. The industry as a whole is producing 20 per cent. more tonnage than in 1933 as a result of general improvement in business conditions and a higher price for liner board. In regard to the company's current situation it is understood that while increase in tonnage is not quite 20 per cent. higher than 1933 production, due to smaller output of strawboard by the Trenton mill, it is stated that the board mill at Toronto is operating at about capacity. Production of the box board division is several weeks behind in deliveries. The increase in production shown this year means that in 1934 the company will record a new peak in its history from the standpoint of tonnage since volume will be over that of 1933, when the company broke all previous records.

### Pulpwood Exports Show Big Increase

Pulpwood exports from Canada this year have been on a considerably larger scale than in the preceding twelve months, according to trade returns just released by the Federal Government. For the twelve months ended October, 1934, Canada exported 911,544 cords with a value of $6,581,385. During the previous year, exports totaled 605,116 cords, valued at $4,514,514. The increase in demand has come almost entirely from the United States, that country having taken 905,457 cords during the past twelve months. In the year ended October, 1933, shipments to the United States amounted to 605,100 cords.

## Work of the Import Committee

There are various reports that paper purchased for export is appearing in the domestic market at prices below those provided for under the terms quoted by the domestic mills to their Code authorities. There is question as to whether these so-called export shipments are actually shipped, or whether these sales are devices by dealers to secure reduced prices on paper for home consumption. The Import Committee of the American Paper Industry is checking all shipments to determine what, if any, such paper has actually been exported and returned.

Export statistics of shipments of American Paper to Cuba indicate a material increase of business since the Cuban Reciprocity Treaty became effective August 24. Exports in September totaled a value of over $250,000, as compared with $180,000 in August.

A shipment of paper from Japan in 1932, entered as standard newsprint, but found to be partially bleached, is involved in a California protest to the United States Customs Court. The importer is protesting the classification of this paper as dutiable printing paper.

The United States Customs Court has decided that canary news in rolls is dutiable, even though the paper involved was used by a newspaper. The case involved two importations at San Diego, California, but the trial was at Seattle. The decision was rendered on the basis that such paper is not chiefly used by newspapers, the color being the basic issue.

# Boston Paper Market Outlook Fairly Promising

## Demand for Various Grades of Fine Paper Only Moderately Active—Seasonal Rush Orders for Wrapping Paper Still Around—Box Board Continues Quiet, With Prices Holding to Schedule—Paper Stock Section Remains Generally Dull

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 17, 1934—Business among Boston paper merchants averaged fair during the week under review, with not much change from the previous week. Some of the wrapping paper dealers continued to have rush orders from local department stores who needed supplies on account of Christmas business. Some other kraft merchants reported slightly more activity. Papeteries are selling well to the retail stores. At the office of one widely known manufacturer of fine paper it was intimated that the volume of orders was much larger than the previous week, but at another sales were not so good. Fine paper merchants, on the whole, transacted a moderate amount of business. Although box board was rather quiet, with prices holding at the same levels, prospects for January appear favorable. Box manufacturers, in common with many others, are striving for low inventories about this time of the year.

In paper stock, the market remained generally dull, with an exception in Nos. 1 and 2 roofing stock, which were very active. Under old papers, No. 1 books heavy declined to .80 @ .85 from .85 @ .90. Other quotations of old papers, together with bagging, new and old domestic rags and foreign rags remained unchanged.

### Paper Distributing Code Refiling

The Code Authority for the Paper Distributing Trade, New England, Central and Northern New York Regional Committee, Region No. 1, of which Edward J. Norris is executive secretary, issued a call on December 11 for refilings on rag content papers, writing paper group, to all fine paper houses in the trading areas of the region. The blank forms for refiling the price schedules were prepared in conformity with the new quantity brackets and classification filed with the Executive Code Authority for the Paper Manufacturers by the Writing Paper Division, on such items with a rag content of 25 per cent and over. Schedules as filed in the office of the Code Authority of Region No. 1 now in effect will remain operative until the new schedules on the new blanks are officially received and filed.

A notice stated:

"Because this office wishes both to avoid technical violations of the Paper Distributing Trade Code under the price reporting plan and confusion in the Paper Distributing Trade in Region No. 1 between the old filed prices on Rag Content Papers and the new price schedules as covered by the enclosed forms, it is desirable that those members of the trade wishing to qualify themselves under the new schedules, file immediately their new prices with this office. To the end of further effectiveness, the time elapsing between filing and effective date on these schedules, is hereby reduced from five days to two days after their receipt in this office."

A second communication was issued December 13, together with price schedules which had been received as a result of the call sent out December 11. The schedules embody the lowest filed prices on the various items listed on the revised forms for rag content-BF-1, rag content bond-BF-3, rag content flat writings-BF-4, rag content linens and mimeographs-BF-5.

These prices became effective December 15. In several of the quantity brackets, the prices are lower, therefore "it is necessary for all houses who have formerly filed prices on these items under the old quantity brackets and classifications to refile on the new forms, in order to lawfully sell at the prices set forth in the forms referred ta." Houses which have not refiled prices have been asked to give the matter their immediate attention in order to avoid technical violation of this Code. All prices set forth in the old forms which are not embodied in the new forms are still in full force and effect.

### News of the Trade

The State bids for paper are now all in. They have been tabulated and are on display at the State House.

A luncheon meeting of the Wrapping Paper Division of the New England Paper Merchants Association was held at the Boston Chamber of Commerce Tuesday, with Robert M. Stone presiding. Mill direct selling was the subject of discussion. About fifteen were present. An adjourned meeting is to be held Thursday of this week.

A luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association is to be held Tuesday, December 18, at the Chamber of Commerce.

A Christmas party with a tree will be held at the office of the D. F. Munroe Company today.

A general sales meeting of Storrs & Bement Company was held at the office of the concern Saturday morning. General Manager John H. Brewer presided.

Wesley W. Binford, in charge of the twine department of the Andrews Paper Company, who has been away from the office six months on account of illness, has gone on a two months trip to the Mediterranean.

H. B. Stanley, of the Erving Paper Mills, Erving, Mass., called on the trade last week.

## Paper Man Again Heads Ohio Chamber of Commerce

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 17, 1934.—Alexander Thomson, of Cincinnati and Hamilton, who was elected for a second term as president of the Ohio Chamber of Commerce last Thursday in Columbus, Ohio, is an American enthusiast. He sought during his first term, and has succeeded admirably, in cementing the chambers of the state into a unit representing all of the people. He has had one idea in mind, that a chamber of commerce to truly represent the people must be made up of industrialists, laborers, farmers, professional men and merchants. In this way only can it speak with authority.

Policies and programs which benefit the community as a whole are those which he believes chambers should support.

A singular tribute was paid to his leadership at the state convention in November, when more than 700 persons attended the meeting at Toledo, twice the number that usually goes to such gatherings.

Mr. Thomson is president of the Hamilton Chamber of Commerce, the Champion Coated Paper Company, and recently led the drive in Hamilton for the federal housing program.

# Holiday Paper Demand Active In Philadelphia

## Pickup In Both Volume of Sales and Collections Experienced During Last Two Months—More Aggressive Selling Campaign Planned by Both Fine and Coarse Paper Organizations for Forthcoming Year—Book Paper Prices Revised

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 17, 1934—Just a year ago, in trying to pierce the fog that hung over the outlook for 1934, it was predicted that the year would be better than 1933, but no one was in a position to produce a yard stick with which to measure that possible improvement. In looking over a review of the files of the PAPER TRADE JOURNAL, we find that considerable space was devoted to the subject of codes for the paper industry. Basically the movement was sound and will, it is believed, survive. But a lot has been learned about codes in the year just closing—much has been learned about their potential advantages.

The year of 1935 will be a year of interpretation and enforcement with less emphasis on artificial price control and more emphasis on fair competition. During 1934 manufacturers in the paper industry, for the most part—lost in the maze of code requirements and other strange factors,—developed little initiative and were largely content to sell along close to immediate demand, and with no great pressure on sales efforts. In other words, 1934 has been a year of marking time.

As the year closes, there are signs of more aggressive action in paper circles for 1935. It is doubtful that output will be pushed much beyond immediate demand, but a more aggressive selling campaign is getting under way in both branches of the industry—fine and coarse.

In the past two months there has been a pickup in both sales and collections, and indications of the moment are that a good holiday trade—far better than last year—is being enjoyed by the wholesale and retail paper merchants here. At one of the leading paper houses it was stated that there was a steady improvement in retail collections since July with a falling off in September and a compensating pickup in November and December.

### Association Activities

Mrs. Doris Lewis, who is in charge of the office of the Philadelphia Paper Trade Association in the Drexel Building, has been working very assiduously getting out to the trade notices of the filing of revised prices on book paper. These notices will reach the trade in a day or two. There will also be released tomorrow notice of a slight upward revision in the higher brackets, on rag content bonds and ledgers.

The annual meeting of the Philadelphia Paper Trade Association will be held on Wednesday, January 9, 1935, at which time officers for the ensuing year will be elected.

During the week a luncheon meeting of the Wrapping Paper Division was held at the Adelphia Hotel. F. A. O'Neill, Sr., president of Paper Manufacturers Company, Inc., presided.

### Edwin Wolf Passes On

Edwin Wolf, founder of the paper products manufacturing firm of Wolf Brothers, 340 North Twelfth street, died yesterday at his home 1517 North 15th street, where he had been ill about a year. He was 79 years old.

Mr. Wolf, who played a prominent role in the city's business and educational life, was former president of the Jewish Publication Society, a member of the Board of Dropsie College, and a member of the board of governors of the Free Library of Philadelphia.

He was born in Ohio, but came to Philadelphia with his parents when he was still a child. He was educated in the public schools here.

With a brother he founded the paper manufacturing firm of Wolf Brothers, and later formed the firm of Wolf Bros. & Co., a banking concern. He was eminently successful in both fields.

In 1910 he was appointed a member of the Board of Education, and six years later was elected president. He served four years as president, resigning from the board in 1920.

Mr. Wolf is survived by two brothers, Clarence Wolf, former State Senator, and Louis Wolf; a daughter, Mrs. Blanche Kohn, and a son, Morris Wolf, a well known lawyer.

### News of the Trade

Within a day or two Garrett-Buchanan Company will release to the trade a new catalog embracing wholesale price list descriptive of all the lines handled by this company, and issued under the "Open Price" plan as determined by the Code Authority. It is spiral bound and got up in a neat and concise manner, characteristic of the Garrett-Buchanan Company.

Eight persons were forced to flee when flames raged through the waste paper and rag shop of Sobel & Davis, at Ninth and Noble streets this week, also endangering adjacent buildings. Firemen from several companies fought the blaze from the roof of an annex and ladders, and after several hours of hard work seemed to gain control.

The fire started in a bale of paper on the second floor of the three-story brick structure located in the southeast corner of the intersection, according to William Davis, of 6144 Osage Avenue, member of the firm which operates the business.

With his son, Lee, 20, and three Negro employees, Davis attempted to halt the spread of flames with buckets of water, but this failed and the five fled. When firemen arrived the flames had spread to all three floors and flames were shooting through the roof.

## Pacific Coast Division Meets

[FROM OUR REGULAR CORRESPONDENT]

TACOMA, Wash., December 10, 1934—The Pacific Coast division American Pulp and Paper Mill Superintendents Association held a two-day session here December 8-9. Reading of a number of prepared papers on plant operation and exchanging of practical information on technical points featured the regular semi-annual meetings. Fred C. Boyce, Brokaw, Wis. past president of the national association was among the more than 100 delegates attending.

Technical papers were read by O. C. Schoenwek, Chicago; W. Norman Kelly, Longview; Henry C. Reimer, Oregon City; J. V. B. Cox, Portland; and R. E. Chase, Tacoma. Cross-table confabs were led by James G. Ramsey, Everett and H. Robert Heuer, Longview, divisional chairman presided at the business sessions. A banquet concluded the conference.

# Delaware TAPPI Discusses Machine Clothing

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held its 26th regular meeting of the Engineers' Club, Philadelphia, Pa., on Friday evening, December 14, 1934. Harvey F. Cannon of The Container Corporation of America presided. After an enjoyable dinner, a number of visitors were introduced to the members. Mr. Cannon announced that owing to the press of other duties James D'A. Clark would be unable to serve as chairman of the Problem Research Committee, and that G. E. Landt had consented to accept the chairmanship.

### Paper Machine Felts

The subject of the meeting was "Machine Clothing". The first speaker, N. J. Larson, Service Engineer, Albany Felt Co., Albany, N. Y. addressed the gathering on "The Function of Paper Making Felts". In the early days of paper making, the cost of felts per ton of paper was not considered important. If a felt performed satisfactorily as far as the quality of the sheet was concerned, the mill was generally content. Today it is necessary to keep the cost per ton in line with the finished paper product and mills are therefore in need of the best felt available. The felt manufacturers are following up every detail in the manufacture of their product in order to produce an entirely satisfactory article from both the cost and quality point of view.

To keep a felt in good condition all of the various operating factors must be taken into consideration. These include chemicals in use, water conditions, mechanical condition of the paper machine, and the manner of operating it. Excessive slippage between the felts and rolls is highly undesirable. The number of rolls should be kept at a minimum and they should be as smooth as possible. Iron rolls are undesirable and worm rolls should be used sparingly. Whippers should be kept in good condition to avoid excessive felt wear. They are generally most satisfactory when operated at about three times the felt speed. The oscillating type of showers with a fan spray are recommended.

### Felt Care

The stretch of a felt will vary at the different points of the machine in accordance with the pulling loads at these points, in as much as the felt has to act as a belt to drive the various parts. A device has been perfected which will determine the tension at all points of the paper machine, and the felt manufacturer with this data can manufacture the felt under conditions closely approximating actual operating conditions.

There are over fifty different types of wool in use. The material is carefully seasoned before weaving. Felts should be stored in a cool, dry place to avoid mildew.

It is extremely important that the felt is shrunk even'y on the machine. This should be done slowly to avoid eventual streaking and wear. The felt should be cleaned carefully, avoiding strong soaps or acids and hot water.

If the paper manufacturers will give the felt makers sincere cooperation, advising any changes in the paper machines as they are made it is probable that felt life can be increased and operating difficulties reduced to a minimum.

### Fourdrinier Wires

H. G. Specht, vice-president and general manager of the Eastwood-Nealley Corporation, Belleville, N. J. then addressed the meeting on "Paper Machine Wires." The fourdrinier wire does not seem to be thoroughly understood. It is a fine and delicate product made of a great number of fine strands of wire woven into a fabric which becomes the mould for the formation of the sheet. If the sheet leaves the wire as a poor sheet of paper, then ideal conditions on the rest of the machine will not transform it into a good sheet. This same wire must also act as belt to drive the entire wet end. It is of extreme importance that all rolls, suction boxes, etc., be kept in perfect operating condition in order to lengthen wire life.

An average wire will travel up to 30,000,000 feet in its life. With sheets varying from 15 to 150 pounds in weight, speeds from 100 to 1600 feet per minute, changes in stock and water conditions, the 1000 paper mills in this country require a custom built product, each wire being built to satisfy the operating peculiarities of a certain machine.

Mr. Specht used a number of lantern slides to illustrate the process of wire manufacture, methods of making seams, and types of breaks which can occur. The actual wearing life of an 80 mesh wire is not much greater than the diameter of a human hair.

Tables were submitted showing the relation between the machine speed and wear of wires, also the machine speed and relative length of wires. Each mill can determine its own operating condition and establish the basis for study of wear. The wire manufacturer cannot overcome, except within limits, the factors resulting from speeding up machines in relation to the formation of the sheet. The type of wire mesh used becomes a factor, as increased speed cuts down the time of formation and water removal. Control of vacuum and number of vacuum boxes will probably indicate increased wire life.

In a great many mills the apron is permitted to rest on the wire a great deal more than is necessary, causing a drag on the wire, affecting wire and apron life, and greatly affecting the formation. It has been stated that the problem of the wire is to keep the fibers in suspension as long as possible. If this is true, then the amount of apron resting on the wire is a factor in sheet formation, as wire area is lost in making for such formation.

The mounting of rolls in the shake frame can be studied for improvement. The rolls should move the wire in order to remove this load from the wire. It seems to be good practice to support the dandy roll between two table rolls, instead of permitting the edges of the suction boxes to act as such supports. Large diameter table rolls, lighter in weight, will turn more easily than small diameter rolls, thus cutting down slippage.

There are several good designs of suction box covers available, dependent upon individual mill preference. The best types of oscillation from the wire point of view is either a reciprocating motion or an end motion with alternate boxes moving in opposite directions.

The tension of the wire should be that which will prevent slippage on the driving roll. Uniform tension is of utmost importance, and the stretch roll should be so set that the operators can obtain proper control.

The arc of contact on the guide roll is important. Many mills have their guide rolls improperly placed causing a severe load on the wire guide and wire edge. Guide and doctor rolls should be properly placed and doctor blades can do much harm if set wrong.

Showers should be placed so that the stock is removed from and not driven into the wire, and also set at such angles that there will be no undue abrasion of the wire by the white water.

The January meeting will be devoted to a discussion of the "Theory of Beating and Refining".

**Among Those Present:**

Among those present were the following:

E. J. Albert, Thwing Instrument Company, Philadelphia, Pa.; G. R. Haggleson, Paper Makers Chemical Corporation, Easton, Pa.; J. C. Dieffenderfer, same company; N. J. Larsen, Albany Felt Company, Albany, N. Y.; W. E. Brown, Container Corporation of America, Manayunk, Pa.; H. P. Cannon, same company; W. T. Marble, same company; S. D. Reynolds, same company; W. Quin, same company; J. G. Schoeff, Asten Hill Manufacturing Company, Philadelphia; E. T. Walther, same company; R. S. Johnston, Pusey & Jones Corporation, Wilmington, Del.; H. W. Clifton, Caro Cloth Corporation, Bloomfield, N. J.; Percival T. Gates, same company; C. M. Connor, Valley Forge Laboratories, W. Conshohocken, Pa.; J. C. Harper Jr., West Jersey Paper Manufacturing Company, Camden, N. J.; Paul Koenig, P. H. Glatfelter Company, Spring Grove, Pa.; George Heidrich, Wallace & Tiernan Inc., Elizabeth, N. J.; H. L. Becher, Agasoto Millboard Company, Trenton, N. J.; F. W. Varden, Barber Asphalt Company, Philadelphia; G. B. Martin, General Dyestuff Corporation, Philadelphia; H. F. Hoffmann, same company; J. M. Benjamin, Messinger Bearings Inc., Philadelphia; W. R. Weill, Pacific Coast Supply Company, San Francisco, Cal.; Fred Streicher, Dill & Collins Inc., Philadelphia; H. C. Schwalbe, same company; D. M. Sutherland Jr., Trenton, N. J.; W. C. Jay, Sanitary Products Corporation of America, Philadelphia; W. H. MacMenegail, C. G. Smith & Co. Ltd., Natal, South Africa; W. L. Bartholomew, Mac Andrews & Forbes Inc., Camden, N. J.; H. W. Piquet, same company; Adolf Schnabel, Mazer Paper Company, Lansdowne, Pa.; C. A. Shubert, Dill & Collins Inc., Philadelphia; H. G. Specht, Eastwood-Nealley Corporation, Belleville, N. J.; A. A. Nvitray, same company; N. W. Webb, same company; G. E. Landt, Continental Diamond Fibre Company, Bridgeport, Pa.; E. N. Wennberg, same company; A. M. Cooper, Westinghouse Electric and Manufacturing Company, Philadelphia; Jasper Purcell, McDowell Paper Mills, Manayunk; M. Craig Maxwell, same company; E. N. Glanner, Downingtown Manufacturing Company, Downingtown, Pa.; C. W. Rivise, Philadelphia; F. J. McAndrews, McDowell Paper Mills, Manayunk; V. Jacobsen, National Aniline and Chemical Company, Philadelphia; J. W. Gregor, Jessup & Moore Paper Company, Elkton, Maryland; John Roslund, Moore & White Company, Philadelphia; J. E. Plumstead, Jessup & Moore Paper Company, Elkton, Maryland.

## New Model Sheet Paster

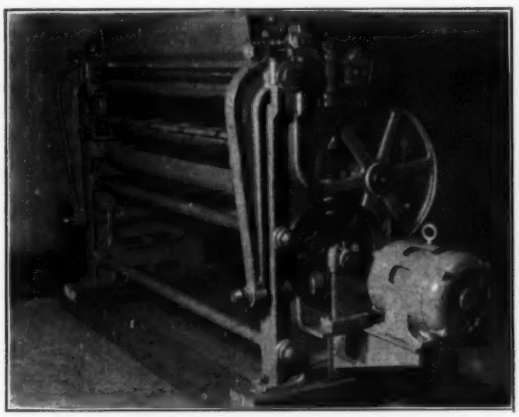
The accompanying illustration shows the New Model "C" Sheet Paster built by Chas. E. Francis Company, Rushville, Ind., for the paperboard industry, which is really a wonderful machine.

This paster regularly is built in 60 inch size, with 16 inch diameter applying rolls and 6 inch diameter driven doctor or scraper rolls. The crotch formed by the top applying roll and its scraper roll acts as a trough for adhesive, and the bottom roll runs in a pan supplied with adhesive. The surface speed of the rolls may be as much or more than 300 feet per minute, to match the top speed of the operators.

The scraper rolls can be adjusted very accurately and easily by means of adjusting screws, which are provided with inclosed springs, so that clearance is allowed for foreign substances which otherwise might damage the rolls. The top unit of the machine is counterbalanced ingeniously to eliminate shock or bounce and to equalize the pressure applied to passes of various thicknesses. These features make possible an extremely close regulation of the coating.

Stock is stripped from the rolls without buckling or tearing by pairs of thin, sharp-pointed spring steel fingers, which are ground to conform with the roll surface and set tangential to the roll. Wasteful finger grooves are eliminated.

The work turned out by the Francis paster is of excellent quality. Since the stock is not immersed in adhesive at any time, it has a minimum of excess moisture and remains flat and true. Either silicate of soda, starch



NEW MODEL "C" SHEET PASTER

or waterproof glue can be used with utmost economy, due to the accurate control of the coating operation. Boards can be built up to any desired thickness.

It is the ideal machine for rapid production, and mills which turn out work in comparatively small lots can also save a great deal of time and labor by its use. When one order is finished, the next can be run without interruption for set-up or change of adjustment. Factories already equipped with the roll or continuous type of paster are adding the Francis Model "C" Sheet Paster to handle short runs and work which must be held to strict specifications.

The machine is furnished either with loose and tight pulleys for belt drive, or motorized. A pump circulating system and storage tank is furnished if desired.

## Stapax, a Self-Contained Lubrication

The Lubrication Products Company, Burgettstown, Pa., with general offices at Cleveland, Ohio, announces Stapax, a self-contained lubrication unit for all types of journal boxes. The company claims it eliminates the need for waste packing.

Stapax is designed with positive spring action. This, together with capillary attraction introduced by its wool felt pad, applied lubrication throughout the length of the bearing, without loss of oil and without excess oil in the journal box. The unit has been given a two and one-half year tryout in the journal boxes of overhead cranes, where it has lowered costs, and completely eliminated the dripping of oil onto products below.

In addition to standard sizes, Stapax is made to meet the specifications of journal boxes of any design. It is low in price, and H. F. Hackedorn, vice president in charge of sales, states that the cost for the change-over is quickly returned through direct savings in labor and in the amount of oil used.

Present users will recall that this device was formerly manufactured b ythe now non-existent Journal Lubricator Company. New sales agent are being appointed.

# Lake States TAPPI Discusses Sizing

The Lake States Section of the Technical Association of the Pulp and Paper Industries met at the Conway Hotel, Appleton, Wis. on Tuesday evening December 11. One hundred and fifty members and guests were present.

A. T. Gardner, Combined Locks Paper Company, chairman of the section, opened the meeting by calling on G. N. Collins, vice president of the national organization, for a few remarks. The following papers dealing with the subject of engine sizing were then presented.

In the paper entitled "Rosin Sizing—Practical and Theoretical", A. C. Dreshfield of the Paper Makers Chemical Corporation reviewed the various theories which have been offered as explanations of the behavior of rosin as used in the sizing operation.

R. L. Davis, secretary of the local section, read the paper "The Delthirna Size System" which had been prepared by A. E. Montgomery, J. O. Ross Engineering Corporation.

"Wax Size" was the title of the paper given by Harold Sinclair, Bennett Inc.

R. J. Egan read the paper "The Bewoid Rosin Size System" by George F. Kennedy, Bulkley Dunton & Co.

"Silicate Sizing—How to Get the Best Results" by William Stericker, Philadelphia Quartz Co. was the next presentation. Mr. Stericker described the methods of using silicate of soda in the sizing operation and enumerated the results which might be expected.

Robert Van Kirk of the Penick and Ford Sales Co. gave the paper "Function of Starch in Paper Making". The origin and characteristics of the various starches used in paper making were described. Methods of application of starch and the most desirable type of starch for the respective methods were suggested. The effects of starch on the properties of the finished sheet were described.

After a lively discussion which lasted for about two hours, the meeting was adjourned.

Among those present were:

A. W. Agrell, Patten Paper Company, Kaukauna, Wis.; Frank Aldrich, Interlake Pulp and Paper Company, Appleton, Wis.; A. W. Amuth, Wisconsin Tissue Mills, Menasha, Wis.; Fred W. Bentzen, Kimberly-Clark Corporation, Neenah, Wis.; Paul Boronow, Valley Iron Works Company, Appleton, Wis.; W. E. Buchanan, Appleton Wire Works; L. A. Carpenter, Oxford Paper Company, Rumford, Me.; Glenn Carroll, Combined Locks Paper Company, Combined Locks, Wis.; G. J. Chapman, Wisconsin Tissue Mills, Menasha, Wis.; C. H. Child, Nekoosa Edwards Paper Company, Nekoosa, Wis.; W. R. Clarke, Continental Diamond Fibre Company, Milwaukee, Wis.; G. N. Collins, International Paper Company, New York City; R. C. Carin, Whiting Plover Paper Company, Stevens Point, Wis.; R. L. Davis, Interlake Pulp and Paper Company, Appleton, Wis.; A. G. Detrie, Standard Oil Company, Green Bay, Wis.; A. C. Dreshfield, Paper Makers Chem. Corporation.

W. P. Feeny, Appleton, Wis.; L. C. Fleck, Kimberly-Clark Corporation, J. Foote, Fox River Paper Company, Appleton, Wis.; A. T. Gardner, Combined Locks Paper Company, Combined Locks, Wis.; J. H. Graff, Institute of Paper Chemistry, Appleton, Wis.; W. H. Guidotti, Leavens Guidotti Company, Neenah, Wis.; C. R. Hackbert, Kimberly Clark Corporation; R. W. Haddock, Escanaba, Mich.; Monroe, Haire, Bergstrom Paper Company, Neenah, Wis.; Herb Helig, Director Vocational Educational School, Appleton, Wis.; L. W. Hoel, Kimberly Clark Corporation; R. N. Hollands, Marathon Paper Mills Company, Rothschild, Wis.

Hans John, Kimberly Clark Corporation; P. E. Jones, Patten Paper Company, Appleton, Wis.; R. W. Van Kirk, Penick and Ford Sales Company; Joseph Krysiak, Wisconsin Tissue Mills, Menasha, Wis.; E. R. Laughlin, E. I. Du Pont de Nemours Company, Wilmington, Del.; R. J. Le Roux, Interlake Pulp and Paper Company, Appleton, Wis.; H. F. Lewis, Institute of Paper Chemistry, Appleton, Wis.; J. D. Line, Mosinee Paper Mills Company, Mosinee, Wis.; J. S. Mohr, Chromium Corporation of America; M. J. Molsberry, General Electric Company, Milwaukee, Wis.

E. B. Morse, Fannon Trading Company, Inc., Appleton, Wis.; G. D. Muggleton, Combined Locks Paper Company; G. C. Munro, Institute of Paper Chemistry, Appleton, Wis.; J. W. McIntyre, Institute of Paper Chemistry, Appleton, Wis.; Leo Pagel, Marathon Paper Mills Company, Rothschild, Wis.; P. A. Paulson, Appleton, Wis.; D. F. Peterson, Bergstrom Paper Company, Neenah, Wis.; Harold Sinclair, Bennett Inc.; J. H. Slater, Escanaba Paper Company, Escanaba, Mich.

Harold Sperka, Thilmany Pulp and Paper Company, Kaukauna, Wis.; I. J. Stafford, Neenah Paper Company, Neenah, Wis.; J. A. Staidl, Thilmany Pulp and Paper Company, Kaukauna, Wis.; Wm. Stericker, Phila. Quartz Company, Philadelphia, Pa.; W. F. Swan, Limestone Products Company, Menominee, Mich.; A. M. Vanderberg, Nekoosa Edwards Paper Company, Port Edwards, Wis.; R. J. Vechinski, Combined Locks Paper Company; E. H. Voightman, Kimberly Clark Corporation, Neenah, Wis.; R. H. Vogt, Interlake Pulp and Paper Company, Appleton, Wis.

C. L. Wagner, Marathon Paper Mills Company, Rothschild, Wis.; J. E. Watson, Wis. Wire Works, Appleton, Wis.; S. D. Wells, Combined Locks Paper Company; E. R. Williams, Neenah Paper Company, Neenah, Wis.; N. F. Wilmot, Mathieson Alkali Works, Chicago; T. E. Xistris, A. E. Broughton & Co., Appleton, Wis.; R. J. Zaumeyer, Kimberly Clark Corporation; J. P. Zelinske, Wisconsin Tissue Mills, Menasha, Wis.

## November Newsprint Statistics

Production of newsprint in Canada during November, 1934, amounted to 240,869 tons and shipments to 262,206 tons, according to the Newsprint Service Bureau. Production in the United States was 74,933 tons and shipments 79,187 tons, making a total United States and Canadian newsprint production of 315,802 tons and shipments of 341,393 tons. During November 28,713 tons of newsprint were made in Newfoundland and 1,756 tons in Mexico, so that the total North American production for the month amounted to 346,271 tons.

The Canadian mills produced 518,048 tons more in the first eleven months of 1934 than in the first eleven months of 1933, which was an increase of 28 percent. The output in the United States was 12,022 tons or 1 percent more than for the first eleven months of 1933, in Newfoundland 46,921 tons or 19 percent more, and in Mexico 3,697 tons more, making a net increase of 580,688 tons, or 19.6 percent.

Stocks of newsprint paper at Canadian mills are reported at 46,488 tons at the end of November and at United States mills 18,425 tons, making a combined total of 64,913 tons compared with 90,504 tons on October 31, 1934.

## PAPER CENSUS: 1933

*(Continued from page 11)*

| Kind | 1933 Quantity (tons, 2,000 lbs.) | 1933 Value | 1931 Quantity (tons, 2,000 lbs.) | 1931 Value |
|---|---|---|---|---|
| Machine-finished, sized, and supercalendered | 802,248 | 60,837,384 | 952,142 | 94,977,883 |
| Body stock for coated paper | 176,513 | 13,606,481 | 199,946 | 18,345,062 |
| Lithograph | 16,737 | 1,478,635 | 10,036 | 1,081,260 |
| Offset | 26,515 | 2,913,085 | 23,454 | 3,146,490 |
| Text | 5,699 | 767,328 | | |
| Other book paper | 52,484 | 3,641,433 | 23,096 | 2,732,104 |
| Cover paper | 12,697 | 2,104,359 | 23,520 | 4,371,668 |
| Writing paper, total | 478,356 | 61,329,986 | 487,598 | 77,865,416 |
| Rag-content | 65,998 | 19,506,687 | 79,718 | 26,959,386 |
| Sulphite-bond | 282,766 | 29,246,639 | 246,971 | 31,304,209 |
| Other chemical wood-pulp writing papers | 129,592 | 12,576,660 | 160,909 | 19,601,821 |
| Wrapping paper, total | 1,440,029 | 95,767,523 | 1,401,667 | 110,885,376 |
| Sulphite | 267,487 | 18,706,254 | 199,780 | 17,604,820 |
| Sulphate (kraft) | 932,598 | 51,675,204 | 867,743 | 58,714,568 |
| Greaseproof | 15,671 | 2,745,930 | 10,774 | 1,755,817 |
| Glassine | 38,441 | 7,131,558 | 37,666 | 6,684,742 |
| Vegetable and other imitation parchment | 9,186 | 1,184,359 | | |
| Other wrapping paper | 176,646 | 14,324,218 | 285,704 | 26,125,429 |
| Tissue paper, total | 406,760 | 37,711,156 | 394,623 | 45,041,174 |
| Toilet | 202,861 | 16,033,585 | 150,652 | 14,319,971 |
| Other tissue paper | 203,899 | 21,677,571 | 243,971 | 30,721,203 |
| Absorbent paper, total | 79,832 | 12,081,629 | 76,592 | 14,774,037 |
| Blotting | 7,045 | 1,057,972 | 9,565 | 1,775,628 |
| Other absorbent paper | 72,787 | 11,023,657 | 67,027 | 12,998,409 |
| Building papers, total | 328,275 | 14,059,962 | 395,359 | 18,129,372 |
| Sheathing | 22,288 | 1,479,797 | 26,341 | 791,407 |
| Asbestos and asbestos-filled | 20,449 | 1,372,962 | 44,002 | 3,010,647 |
| Rag felts and other building papers | 285,538 | 11,207,203 | 325,016 | 14,327,318 |
| Other paper | 74,486 | 6,236,235 | 31,441 | 4,500,770 |
| Paperboards, total | 4,076,290 | 161,180,877 | 3,847,823 | 149,112,313 |
| Container boards | 2,020,617 | 72,270,749 | 1,903,792 | 62,155,074 |
| Folding boxboards (bending) | 957,626 | 38,566,611 | 905,710 | 37,946,800 |
| Set-up boxboards (non-bending) | 571,898 | 19,707,593 | 562,176 | 16,055,441 |
| Binders' board | 26,429 | 1,563,272 | 32,703 | 2,177,414 |
| Cardboard | 71,667 | 6,744,306 | 74,102 | 8,045,998 |
| Leatherboard | 21,437 | 1,799,302 | 26,715 | 2,581,467 |
| Pressboard | 7,241 | 1,168,219 | 4,000 | 822,828 |
| Other boards[1] | 399,375 | 19,360,825 | 338,625 | 19,327,391 |

[1] Figures include data for building boards, as follows: For 1933, 58,048 tons, valued at $2,873,402; for 1931, 112,049 tons, valued at $6,995,825.

TABLE 4.—PAPER AND PAPERBOARD—PRODUCTION, BY QUANTITY AND VALUE, BY STATES: 1933 AND 1931

(Statistics are presented for each State for which separate figures can be given without disclosing, exactly or approximately, any data for individual establishments. Cetrain of the "Other States," however, are more important in the industry than some of the States shown separately.)

| State | 1933 Quantity (tons, 2,000 lbs.) | 1933 Value | 1931 Quantity (tons, 2,000 lbs.) | 1931 Value |
|---|---|---|---|---|
| United States | 9,190,017 | $521,552,577 | 9,381,840 | $631,106,209 |
| California | 167,033 | 8,249,236 | 192,273 | 9,724,409 |
| Connecticut | 156,676 | 8,075,153 | 153,391 | 8,049,394 |
| Illinois | 437,242 | 16,192,268 | 485,725 | 16,766,088 |
| Indiana | 234,909 | 9,732,239 | 234,422 | 10,089,448 |
| Louisiana | 394,373 | 15,885,704 | 295,005 | 13,613,164 |
| Maine | 836,851 | 43,617,214 | 956,385 | 65,481,800 |
| Maryland | 104,980 | 5,875,875 | 87,099 | 6,138,613 |
| Massachusetts | 350,250 | 39,546,527 | 405,861 | 55,388,300 |
| Michigan | 892,903 | 46,910,087 | 902,561 | 54,473,879 |
| Minnesota | 232,702 | 10,328,221 | 240,785 | 13,013,682 |
| New Hampshire | 134,495 | 11,333,007 | 130,027 | 13,259,242 |
| New Jersey | 484,742 | 22,944,648 | 498,301 | 23,986,027 |
| New York | 993,197 | 62,830,019 | 1,160,037 | 86,884,126 |
| Ohio | 744,183 | 44,060,848 | 788,912 | 50,667,907 |
| Oregon | 197,970 | 10,697,907 | 200,065 | 13,492,637 |
| Pennsylvania | 611,164 | 42,532,680 | 607,830 | 47,255,241 |
| Tennessee | 86,686 | 3,583,310 | 94,569 | 3,914,554 |
| Vermont | 67,575 | 3,648,169 | 65,676 | 4,835,673 |
| Virginia | 311,350 | 15,073,945 | 275,523 | 16,691,393 |
| Washington | 381,997 | 20,933,429 | 374,765 | 25,575,133 |
| West Virginia | 46,331 | 3,406,349 | 43,579 | 3,739,969 |
| Wisconsin | 718,473 | 50,273,853 | 727,032 | 63,727,147 |
| Other States[1] | 603,935 | 25,821,889 | 462,017 | 24,338,383 |

[1] Alabama, Arkansas, Colorado, Delaware, District of Columbia, Florida, Georgia, Iowa, Kansas, Mississippi, Missouri, North Carolina, Rhode Island, South Carolina, Texas.

## Klinedinst Elected to Timken Board

At a meeting of the board of directors of the Timken Roller Bearing Company on October 30, L. M. Klinedinst was elected to the board and also promoted to the office of vice-president in charge of sales to fill the vacancy created by the recent resignation of Judd W. Spray. Mr. Spray plans to spend the winter in Florida and rest indefinitely before announcing his future plans.

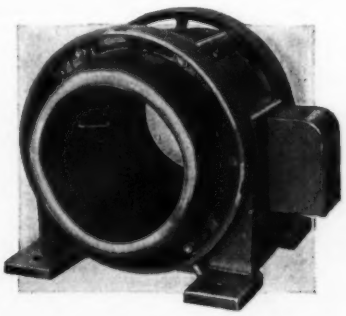
Mr. Klinedinst has been associated with the Timken Company for twenty-nine years, having started his business career there as a young man immediately upon completing school. During his early years with the company he occupied various junior executive positions in both the manufacturing and selling divisions. Subsequently he was closely identified with automotive development work for many years, serving as assistant sales manager during the period when the company's business was largely confined to automotive applications.

Thirteen years ago, when the company started expanding into the industrial field, he was made general manager of the Industrial Division, and is largely responsible for the spectacular expansion in the use of Timken bearings to their present dominent position in nearly every type of industrial equipment. He has been vice-president in charge of all industrial sales since 1930.

T. V. Buckwater, who has been vice-president of the Timken Roller Bearing Company for several years, was elected vice-president and director of the Timken Steel and Tube Company.

## Seal Clad Motors

The new "Seal-Clad" Squirrel-Cage Motors introduced by Allis-Chalmers are of open type construction, with permanent coil protection. Hard, smooth, Bakelite shields are sealed over the stator coils giving protection against



metallic dust, grit, oil, moisture, mild acids and other agents injurious to insulation. They are built in ratings up to 25 hp. 1800 r.p.m., and suited to a much broader range of application than the ordinary open motor.

"Seal-Clad" motors have cast-steel frames; twistless and distortionless stators; silver-brazed, indestructible rotors; oil and dust-tight sleeve or anti-friction bearings.

## Hudson River Branch Elects Officers

GLENS FALLS, N. Y., December 17, 1934—At a meeting in the recreation rooms of Finch, Pruyn & Co. officers for the coming year were chosen by the Hudson River branch of Pulp, Sulphite and Paper Mill Workers. Henry Greenwood was re-elected president of the organization for his tenth consecutive term. Other officers elected were as follows: Clarence Burch, vice president; Timothy Mulcahy, treasurer and recording secretary; Ernest Mason, financial secretary; Herbert Briggs, inside guard; trustees, Clarence Doty, Percy Hovey and William McGarr. Announcement was made that the officers would be installed by John P. Burke, international president, at a meeting here early in January.

# U. S. Census of Pulp Manufactures: 1933

Wage-earner employment in the manufacture of pulp increased substantially during 1933, according to a preliminary report compiled from date collected in the Biennial Census of Manufacturers taken in 1934, released by Director William L. Austin, Bureau of the Census, Department of Commerce. This report shows 17,681 wage earners on the pay rolls in March, 18,910 in June, 22,736 in September, and 23,072 in December.

The total production of pulp (wood and other fiber) decreased from 4,409,344 tons, valued at $156,174,967, in 1931, to 4,329,248 tons, valued at $125,314,731, in 1933, the rates of decrease being 1.8 per cent for quality and 19.8 per cent for value. The total consumption of wood in 1933 amounted to 6,543,574 cords, costing $48,233,790. Of this total, nearly two-thirds—4,157,117 cords, costing $29,353,951—was contributed by domestic spruce and hemlock and Southern yellow pine; and nearly one-half—2,921,906 cords, costing $22,769,864—was reported from Maine, Washington, and Wisconsin.

Statistics for 1933, with comparative figures for earlier years, are given in the following tables. All figures for 1933 are preliminary and subject to revision.

TABLE I.—SUMMARY FOR THE INDUSTRY, FOR THE UNITED STATES: 1933, 1931, AND 1929

| | 1933 | 1931 | 1929 |
|---|---|---|---|
| Number of establishments | [1] 181 | [1] 198 | [1] 198 |
| Wage earners (average for the year) [2] | 20,074 | 20,219 | 24,729 |
| Wages [2] | $18,103,342 | $22,843,982 | $32,679,407 |
| Cost of materials, fuel, and purchased electric energy [3] | $81,896,058 | $110,668,220 | $148,752,729 |
| Products, total value [3] | $135,326,674 | $166,559,043 | $238,928,279 |
| Wood pulp: | | | |
| Quantity (tons, 2,000 lbs.) | 4,329,248 | 4,409,344 | 4,862,885 |
| Value | $125,314,731 | $156,174,967 | $223,178,096 |
| Other pulp: | | | |
| Quantity (tons, 2,000 lbs.) | 89,464 | 69,849 | 74,350 |
| Value | $8,399,010 | $8,759,273 | $11,581,324 |
| Other products, value | $1,612,933 | $1,624,803 | $4,168,859 |
| Value added by manufacture [4] | $53,430,616 | $55,890,823 | $90,175,550 |

[1] The 181 establishments which reported for 1933 operated 185 mills, including eight which manufactured pulp from materials other than wood; the 198 establishments covered by the 1931 census operated 204 mills, including five which used materials other than wood; and the 198 establishments covered by the 1929 census operated 208 mills, including three which used materials other than wood.

[2] Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners can not, therefore, be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1933 and those for earlier years, the possibility that the proportion of part-time employment varied from year to year should be taken into account.

[3] Manufacturers' profits or losses can not be calculated from the census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[4] Value of products less cost of materials, fuel, and purchased electric energy.

TABLE II.—WAGE EARNERS, BY QUARTERS FOR THE INDUSTRY, FOR THE UNITED STATES: 1933 AND 1931

(The figure given for the final month of each quarter is the total number of wage earners on the pay rolls for the week including the fifteenth day of the month, or for some other representative week in the month.)

| Census year | March | June | September | December |
|---|---|---|---|---|
| 1933 | 17,681 | 18,910 | 22,736 | 23,072 |
| 1931 | 20,769 | 20,491 | 19,678 | 19,122 |

TABLE III.—WOOD-PULP PRODUCTION—QUANTITY AND VALUE, BY PROCESS, FOR THE UNITED STATES: 1933 AND 1931

| | 1933 | | 1931 | |
|---|---|---|---|---|
| Process | Tons | Value, f.o.b. mill | Tons | Value, f.o.b. mill |
| Aggregate | [1] 4,329,248 | [1] $125,314,731 | [1] 4,409,344 | [1] $156,174,967 |
| Mechanical, total | 1,197,553 | 23,612,012 | 1,449,240 | 34,100,157 |
| Not steamed | 1,079,066 | 21,269,727 | 1,363,726 | 31,687,745 |
| Steamed | 118,487 | 2,342,285 | 85,514 | 2,412,412 |
| Sulphite, total | 1,286,619 | 53,108,144 | 1,417,523 | 70,361,620 |
| Unbleached | 543,957 | 19,394,755 | 676,711 | 28,053,795 |
| Bleached | 742,662 | 33,713,389 | 740,812 | 42,307,825 |
| Sulphate, total | 1,263,222 | 29,170,894 | 1,033,439 | 28,839,604 |
| Unbleached | 1,195,938 | 26,618,287 | 979,500 | 26,265,077 |
| Bleached | 67,284 | 2,552,607 | 53,939 | 2,574,527 |
| Soda, total | [2] 547,919 | [2] 19,038,995 | [3] 460,682 | [3] 22,181,487 |
| Unbleached | [2] 185,337 | [2] 3,969,631 | (4) | (4) |
| Bleached | 362,582 | 15,069,364 | (4) | (4) |
| Screenings, total | 33,935 | 384,686 | 48,460 | 692,099 |
| Mechanical | 4,243 | 45,499 | 10,115 | 96,256 |
| Semichemical | 29,692 | 339,187 | 38,345 | 595,843 |

[1] Exclusive of small quantities of cotton pulp, cottonseed-hull-shavings pulp, rag pulp, and reclaimed paper pulp for both years and, in addition, straw pulp for 1933. See Table I.

[2] Includes data for semichemical pulp and for a small quantity of pulp not covered by items specified; included here to avoid disclosing the production of individual establishments.

[3] Soda fiber, 374,054 tons, valued at $20,960,628; semichemical and other wood pulp, 86,628 tons, valued at $1,220,859.

[4] Withheld to avoid disclosing approximations of amounts produced by individual establishments.

TABLE IV.—PULPWOOD CONSUMPTION—QUANTITY AND COST, BY KIND OF WOOD, FOR THE UNITED STATES: 1933

| Kind of Wood | Cords | Cost |
|---|---|---|
| Total | [1] 6,543,574 | $48,233,790 |
| Spruce: | | |
| Domestic | 1,495,061 | 15,794,350 |
| Imported | 576,000 | 6,927,426 |
| Yellow pine, Southern | 1,560,414 | 6,864,202 |
| Hemlock: | | |
| Domestic | 1,101,642 | 6,695,399 |
| Imported | 10,914 | 68,931 |
| Balsam fir: | | |
| Domestic | 261,466 | 2,018,343 |
| Imported | 41,465 | 446,593 |
| Poplar, domestic and imported [2] | 333,438 | 3,347,228 |
| Jack pine | 178,974 | 1,223,037 |
| Beech, birch, and maple | 93,032 | 846,715 |
| White fir [3] | 154,847 | 620,510 |
| Tamarack (larch) | 21,844 | 147,479 |
| Other woods [4] | 252,436 | 1,606,622 |
| Slabs and mill waste | [3] 462,041 | 1,626,955 |

[1] Includes data for a small quantity of spent licorice root of no market value.

[2] Figures combined to avoid disclosing, exactly or approximately, the quantities consumed by individual establishments.

[3] Domestic only.

[4] In the order of their importance, domestic yellow poplar, chestnut, cottonwood, gum, Douglas fir, willow, basswood, white pine, and miscellaneous hardwoods not reported separately, and a small quantity of imported pine.

TABLE V.—PULP WOOD CONSUMPTION, BY QUANTITY AND COST, AND WOOD-PULP PRODUCTION, BY QUANTITY AND VALUE, BY STATES: 1933

(Statistics are given for all States for which separate figures can be published without disclosing, exactly or approximately, the data reported by individual establishments. Certain of the "Other States," however, consumed larger quantities of wood and produced larger quantities of pulp than some of the States shown separately.)

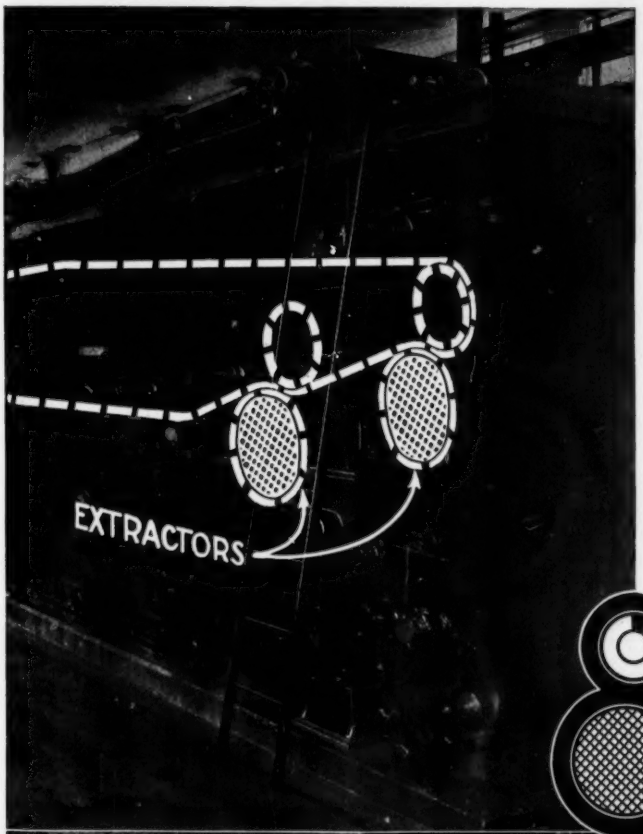
| | Wood consumed | | Wood pulp produced | |
|---|---|---|---|---|
| State | Cords | Cost | Tons (2,000 pounds) | Value |
| United States | 6,543,574 | $48,233,790 | 4,329,248 | $125,314,731 |
| Louisiana | 584,217 | 2,295,315 | 382,983 | 7,833,513 |
| Maine | 980,375 | 10,294,033 | 778,670 | 18,580,679 |
| Massachusetts | 19,599 | 232,474 | 12,387 | 513,361 |
| Michigan | 252,295 | 1,941,931 | 153,674 | 5,281,025 |
| Minnesota | 235,011 | 1,647,021 | 154,522 | 4,467,056 |
| New Hampshire | 155,140 | 1,349,213 | 78,802 | 4,546,495 |
| New York | 478,727 | 6,379,253 | 400,835 | 12,522,983 |
| Oregon | 241,841 | 1,453,780 | 189,332 | 5,040,341 |
| Pennsylvania | 224,076 | 2,734,374 | 127,415 | 6,277,689 |
| Vermont | 16,011 | 227,619 | 18,000 | 353,822 |
| Virginia | 387,513 | 2,159,190 | 261,712 | 7,784,819 |
| Washington | 1,076,752 | 5,218,145 | 583,770 | 18,803,093 |
| Wisconsin | 864,779 | 7,257,686 | 532,610 | 18,959,678 |
| Other States [1] | 1,027,238 | 5,043,756 | 654,536 | 14,350,177 |

## Union Bag Mill No. 5 Demolished

[FROM OUR REGULAR CORRESPONDENT]

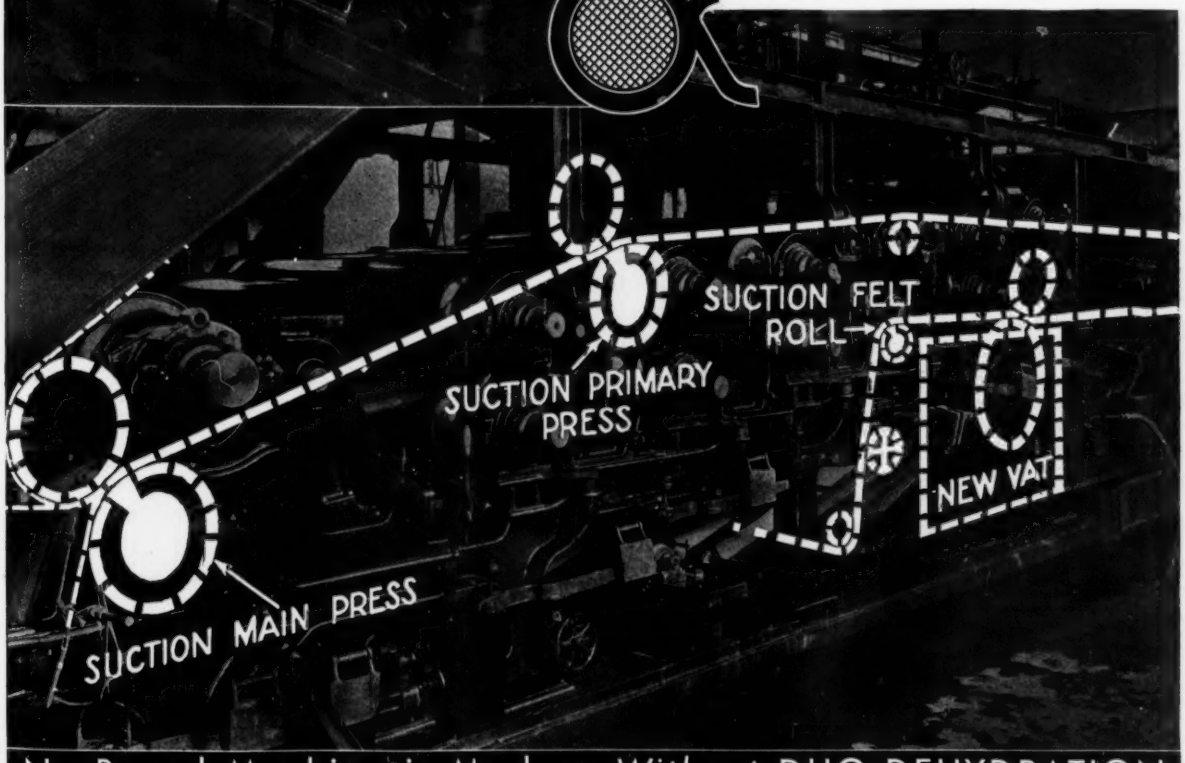
HUDSON FALLS, N. Y., December 17, 1934—The property of the Union Bag and Paper Corporation, known as Mill No. 5 is being demolished after having been idle for some time. The paper machine in the plant which was used for manufacturing was shipped to a concern at Bogalusa, La., several years ago. The structure was built about forty years ago and was operated on the three shift basis with about 100 hands until a few years ago when conditions caused a change. A pulp mill adjoining the property was in operation for several years but last winter a portion of the roof caved in leaving the structure in a precarious condition. Several charges of dynamite were used in tearing down the walls

# DOWNINGTOWN




## How Duo-Dehydration is Applied to the Conventional Board Machine

**The modernization of any conventional board machine with Duo-Dehydration is easily accomplished in various ways, one of which is illustrated by diagrammatic outlines on the photographs. The monkey presses are removed and Downingtown Rubber Covered Suction Rolls installed as Primary Press and for the Main Presses. Two Extractor Units are installed after the last vat and Downingtown Suction Felt Rolls installed to keep the pick-up and press felts clean. A new vat, another stack of dryers and sometimes both can be added in the space gained. If you are interested in the results obtained by mills which have changed over to Duo-Dehydration, write the Downingtown Mfg. Co., Downingtown, Pa. Duo-Dehydration is covered by patents granted and applied for.**




No Board Machine is Modern *Without* DUO-DEHYDRATION

## A Warning From PIA

Charles W. Boyce, secretary of the Paper Industry Authority, under date of December 18, sent the following letter to secretaries of Divisional Associations:

The Paper Industry Authority has been informed that some paper claimed to be purchased for export is not exported but is sold in the domestic markets, or, if actually exported, is returned to the United States and sold here.

While the Paper Industry Authority is reluctant to believe that any manufacturer or distributor would indulge in "chiseling" of such a flagrant nature, it feels constrained to say that if facts indicating that manufacturers or distributors are indulging in such practices, such facts will be forthwith presented to the National Recovery Administration and to other Federal officials for speedy action.

The General Code for the Paper and Pulp Industry relates to sales, or offers to sell, "for domestic consumption." It does not relate to *bona fide* sales for foreign consumption. All members of the Industry are familiar with the Code, and the filing of price schedules as required therein. It may be, however, that there are some members who overlook the fact that the Code is a Statute of the United States and, while NIRA may by its terms provide for only a fine for a violation thereon, those who by agreement or by concerted action violate the Code, may be dealt with under the old Conspiracy Statute, passed in 1867, reading as follows:

"If two or more persons conspire either to commit any offense against the United States, or to defraud the United States in any manner or for any purpose, and one or more of such parties do any act to effect the object of the conspiracy, all the parties to such conspiracy shall be liable to a penalty of not less than one thousand dollars and not more than ten thousand dollars, and to imprisonment not more than two years."

The violation of a Statute of the United States is "an offense against the United States" and may be dealt with under this Statute, if such violation is the result of an agreement or conspiracy between two or more persons. In the case of the United States v. Schechter, in the United States District Court for the Eastern District of New York, the Court held that NIRA was constitutional and that an indictment charging a conspiracy to violate a Code of Fair Competition would be sustained. The defendants were charged with such a conspiracy, a demurrer to the indictment was overruled. On trial, defendants were convicted and prison sentences imposed by the Court.

It is suggested that mills selling for export should require from the purchasers complete documentary proof, not only that the merchandise is purchased for export, but that it is actually exported on *bona fide* orders for foreign consumption.

It is recommended that you send a copy of this letter to each member of your Division. It is also recommended that you ask your members to notify you of all orders received by them for export.

It is expected that all members will cooperate in an endeavor to eliminate the practices herein referred to.

## Swedish Pulp Mills To Expand

WASHINGTON, D. C., December 19, 1934—Several of the north Swedish wood pulp mills have planned to enlarge their output, the aggregate increase in tonnage amounting to 77,000 metric tons of various classes of pulp, divided as follows: Sulphate 59,000 tons; sulphite 8,000 tons; and mechanical groundwood 10,000 tons, according to a report from Acting Commercial Attache Osborn S. Watson, Stockholm.

## Paper Board Production for October

Monthly statistics of Paperboard for 94 identical manufacturers compiled from data furnished by the National Paperboard Association from reports of members, and by manufacturers reporting direct to the Bureau of the Census, are presented in the following table. These statistics were previously published under the title "Box Board."

Rated (24-hour) capacity data of paperboard machines in inch-hours in this report are based on last dryer width whereas those shown in reports published for earlier years were based on maximum trim width. The capacity data vary according to the normal number of working days in each month.

TABLE 1
INCH HOURS OPERATED, PRODUCTION, AND ORDERS

| Year and Month | Operated (Inch hours) (Based on last drier width) | | | Production (tons) | | | | |
|---|---|---|---|---|---|---|---|---|
| | Rated Capacity | Operated | Per cent of Capacity | Rated Capacity | Output | Per cent of Capacity | New Orders (Tons) | Unfilled Orders (Tons) |
| 1934 | | | | | | | | |
| Jan. | 14,660,767 | 8,386,520 | 57.2 | 401,900 | 230,311 | 57.3 | 218,169 | 63,328 |
| Feb. | 13,048,031 | 8,298,684 | 63.6 | 351,714 | 223,366 | 63.5 | 234,318 | 75,143 |
| Mar. | 14,995,780 | 9,454,746 | 63.0 | 401,966 | 254,819 | 63.4 | 264,985 | 86,033 |
| April | 13,703,272 | 8,978,520 | 65.5 | 369,881 | 244,334 | 66.1 | 230,754 | 76,574 |
| May | 14,934,038 | 8,374,420 | 56.1 | 403,139 | 223,478 | 55.4 | 225,957 | 80,958 |
| June | 14,658,061 | 8,355,200 | 57.0 | 392,585 | 224,214 | 57.1 | 214,236 | 72,990 |
| July | 13,994,803 | 7,375,422 | 52.7 | 384,143 | 201,924 | 52.6 | 200,278 | 73,256 |
| Aug. | 15,077,417 | 8,902,258 | 59.0 | 419,635 | 246,266 | 58.7 | 246,187 | 71,523 |
| Sept. | 13,701,416 | 8,557,827 | 62.5 | 380,272 | 233,426 | 61.4 | 228,804 | 72,930 |
| Oct. | 15,348,748 | 9,663,314 | 63.0 | 412,533 | 263,679 | 63.9 | 255,744 | 68,756 |
| Total 10 mos. | 144,122,333 | 86,346,911 | 60.0 | 3,917,768 | 2,345,817 | 59.9 | 2,319,432 | ..... |
| 1933 | | | | | | | | |
| Jan. | 14,210,696 | 7,679,402 | 54.0 | 392,770 | 205,326 | 52.3 | 207,214 | 36,065 |
| Feb. | 12,560,626 | 7,572,068 | 60.3 | 350,350 | 205,871 | 58.8 | 207,705 | 38,505 |
| Mar. | 15,472,220 | 8,758,969 | 56.6 | 432,799 | 237,536 | 54.9 | 250,480 | 53,542 |
| April | 13,761,134 | 8,185,670 | 59.5 | 384,846 | 223,845 | 58.0 | 236,022 | 70,099 |
| May | 14,888,820 | 10,418,818 | 70.0 | 417,798 | 287,032 | 68.7 | 294,460 | 76,719 |
| June | 13,695,506 | 10,432,158 | 76.2 | 384,283 | 292,967 | 76.2 | 349,650 | 144,307 |
| July | 12,925,903 | 10,230,022 | 79.1 | 358,378 | 283,272 | 79.0 | 268,546 | 128,638 |
| Aug. | 14,403,798 | 11,228,582 | 78.0 | 404,838 | 312,747 | 77.3 | 307,321 | 118,298 |
| Sept. | 12,969,506 | 9,265,645 | 71.4 | 357,093 | 252,452 | 70.7 | 238,771 | 105,423 |
| Oct. | 13,553,121 | 8,161,859 | 60.2 | 380,201 | 228,416 | 60.1 | 185,026 | 62,177 |
| Total 10 mos. | 138,441,330 | 91,933,193 | 66.4 | 3,863,356 | 2,529,464 | 65.5 | 2,545,195 | ..... |
| Nov. | 13,711,706 | 7,523,076 | 54.9 | 382,320 | 206,933 | 54.1 | 199,059 | 55,080 |
| Dec. | 13,441,090 | 6,530,001 | 48.6 | 374,054 | 176,337 | 47.1 | 169,116 | 48,920 |
| Total Year | 165,594,126 | 105,986,270 | 64.0 | 4,619,730 | 2,912,734 | 63.0 | 2,913,370 | ..... |

TABLE 2
SHIPMENTS, STOCKS, AND PRODUCTION OF PAPERBOARD, AND CONSUMPTION AND STOCKS OF WASTE PAPER
(SELECTED MANUFACTURERS)

| Year and Month | Shipments of paperboard [1] | Stocks of paperboard end of month [1] | Consumption of waste paper [2] | | | Stocks of waste paper end of month [2] | | |
|---|---|---|---|---|---|---|---|---|
| | | | Capacity | Consumed | Per cent of capacity | Total | at plants | In transit and unshipped purchases |
| | Tons | | | | | Tons | | |
| 1934 | | | | | | | | |
| Jan. | 187,557 | 77,825 | 305,410 | 173,251 | 56.7 | 206,063 | 178,284 | 27,779 |
| Feb. | 192,685 | 75,687 | 303,377 | 180,715 | 59.6 | 234,436 | 197,371 | 37,065 |
| Mar. | 221,114 | 84,326 | 375,985 | 229,718 | 61.1 | 237,237 | 205,891 | 31,346 |
| April | 213,956 | 82,190 | 318,158 | 197,368 | 62.0 | 243,972 | 215,479 | 28,493 |
| May | 197,543 | 74,670 | 320,281 | 175,852 | 54.9 | 255,415 | 227,708 | 27,707 |
| June | 190,896 | 70,659 | 393,381 | 207,140 | 52.7 | 237,637 | 221,667 | 15,970 |
| July | 179,264 | 69,119 | 418,098 | 224,549 | 53.7 | 257,855 | 230,129 | 27,726 |
| Aug. | 223,686 | 70,064 | 344,199 | 208,065 | 60.4 | 257,527 | 232,650 | 24,877 |
| Sept. | 198,729 | *71,478 | 325,227 | 200,164 | 61.5 | 268,063 | 241,445 | 26,618 |
| Oct. | 226,584 | 72,035 | 357,764 | 230,459 | 64.4 | 231,497 | 198,871 | 32,626 |
| Total 10 mos. | 2,032,014 | ..... | 3,461,880 | 2,027,281 | 58.6 | ..... | ..... | ..... |
| 1933 | | | | | | | | |
| Jan. | 149,743 | 80,925 | 277,582 | 143,909 | 51.8 | 164,829 | 142,964 | 21,865 |
| Feb. | 158,993 | 77,778 | 272,672 | 157,836 | 57.9 | 155,568 | 128,433 | 27,135 |
| Mar. | 181,796 | 77,902 | 307,539 | 174,472 | 56.7 | 151,259 | 125,610 | 25,649 |
| April | 174,914 | 78,827 | 315,625 | 186,038 | 58.9 | 158,813 | 129,859 | 28,954 |
| May | 221,612 | 76,953 | 342,256 | 234,993 | 68.7 | 135,534 | 104,357 | 31,177 |
| June | 260,101 | 66,932 | 282,786 | 227,626 | 80.5 | 119,365 | 90,437 | 28,928 |
| July | 246,994 | 66,371 | 288,568 | 231,065 | 80.1 | 114,006 | 87,380 | 26,626 |
| Aug. | 252,036 | 63,965 | 327,179 | 252,346 | 77.1 | 126,067 | 103,460 | 22,607 |
| Sept. | 226,336 | 65,110 | 300,418 | 213,639 | 71.1 | 149,171 | 128,305 | 20,866 |
| Oct. | 191,989 | 63,315 | 300,480 | 182,895 | 60.9 | 159,107 | 143,074 | 16,033 |
| Total 10 mos. | 2,064,514 | ..... | 3,015,105 | 2,004,819 | 66.5 | ..... | ..... | ..... |
| Nov. | 175,148 | 70,263 | 300,588 | 167,918 | 55.9 | 191,307 | 158,326 | 32,981 |
| Dec. | 152,712 | 64,965 | 288,196 | 145,397 | 50.5 | 193,771 | 172,231 | 21,540 |
| Total Year | 2,392,374 | ..... | 3,603,889 | 2,318,134 | 64.3 | ..... | ..... | ..... |

* Revised.
[1] As reported by 78 manufacturers.
[2] As reported by 82 manufacturers.

A

MERRY

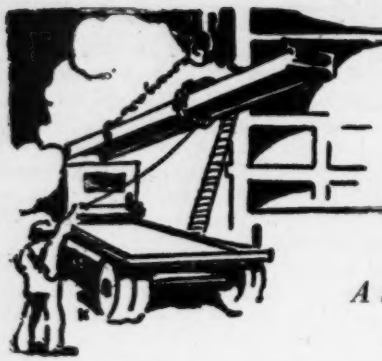
CHRISTMAS

TO YOU—

-Dilts-

MACHINE WORKS Inc. FULTON, N.Y.

*"Your Paper Is Made in Your Beaters"*



# CONSTRUCTION NEWS

*A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills*

### Construction News

**Camas, Wash.**—The Crown Willamette Paper Company has approved plans for new three-story building on shipping dock for storage and distributing service, to be 100 x 400 feet, each floor to be equipped with electric tramways and other material-handling equipment. It is estimated to cost over $70,000, with equipment. General contract has been let to the Hoffman Construction Company, 715 S.W. Columbia street, Portland, Ore., and work will soon be placed under way. Main offices of company are at 343 Sansome street, San Francisco, Cal. H. N. Simpson is company engineer, in charge.

**Winchester, Va.**—The Kieckhefer Container Company, West Canal street, Milwaukee, Wis., manufacturer of paper boxes and containers, an interest of the Eddy Paper Corporation, St. Joseph, Mich., has concluded negotiations for acquisition of plant of the Shenandoah Box Board Corporation, Winchester, and will occupy for new branch plant. Alterations and improvements are planned. It is understood that new unit will be placed in service at early date.

**New York, N. Y.**—The B. & M. Paper Box Company, Inc., recently organized with capital of $25,000, plans operation of local plant for manufacture of paper boxes and containers. New company is represented by Jacob W. Block, 401 Broadway, New York. The incorporators include Hyman and Harold Block.

**Chicago, Ill.**—The Tannenbaum Company has filed notice of change in company name to the California Paper Company.

**Erie, Pa.**—The building at 1210-14 Peach street, occupied in part by the Erie Paper Company for storage and distributing service was recently damaged by fire, with total loss reported at $30,000. A portion of property of the Erie company was damaged, and will be replaced at early date. No official estimate of loss of latter has been announced.

**Cleveland, Ohio**—The Globe Paper Company, 1506 Superior avenue, has taken out a building permit for three new plant additions to storage and distributing plant, recently referred to in these columns, consisting of two two-story structures, each about 20 x 60 feet, and a one-story unit, 28 x 30 feet. Superstructure will be placed under way at once and pushed to early completion. Bolton & Pratt Construction Company, Marion Building, Cleveland, is general contractor. H. M. Morse & Company, Sloan Building, city, are architects.

**Windsor, Conn.**—The Stevens Paper Mills, Inc., has approved plans for new building at mills in the Rainbow district, to be one and one-half story, 26 x 50 feet, designed for storage and distribution. General contract has been awarded to the R. F. Jones Company, 15 Lewis street, Hartford, Conn., and work will be placed under way at once.

**New York, N. Y.**—The Robles Envelope Company, recently organized to manufacture and deal in commercial envelopes, etc., will occupy space in building at 1141 Broadway for local headquarters.

**Chicago, Ill.**—The Durable Box Company, 4450 West Fillmore avenue, manufacturer of paper boxes and containers, etc., has arranged for change of company name to the Chicago Box Corporation.

**Green Bay, Wis.**—The Fort Howard Paper Company has work well in progress on new additions to mill, previously referred to in these columns, consisting of two one-story structures, 60 x 120 feet, and 50 x 75 feet, and proposes to have units ready for occupancy in the near future. Expansion is reported to cost approximately $35,000, with equipment. The Selmer Company, 305 East Walnut street, Green Bay, is general building contractor, in charge.

**St. Paul, Minn.**—The Kaplan Paper Box Company, South Wabash avenue, manufacturer of folding and other paper boxes and containers, has taken out a permit for new addition to plant, to be one-story, 25 x 100 feet, reported to cost over $24,000, with equipment. Superstructure will be placed under way soon. George Kaplan is president and general manager, in charge.

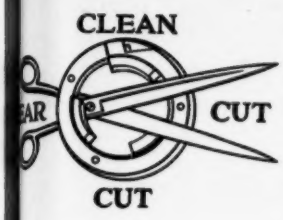
### New Companies

**Long Island City, N. Y.**—The I. T. Paper Stock Corporation has been incorporated with capital of $20,000, to deal in waste paper stocks. New company is represented by Powsner, Katz & Polinsky, 26 Court street, Brooklyn, N. Y., attorneys.

**New York, N. Y.**—Stanley Patents, Inc., has been chartered with capital of $20,000, to manufacture and deal in special paper boxes and containers. The incorporators are J. I. Seifer, 171 East 102nd. street, and Joseph A. Corman, 514 West End avenue, both New York.

**Los Angeles, Cal.**—The Bissell Paper Company has been incorporated with capital of 500 shares of stock, no par value, to deal in paper products of various kinds. The incorporators are Wilfred Benoit, C. Copeland and William G. Bissell, 429 Bushnell street. New company will succeed to organization of similar name, with headquarters at 1375 West 24th street, Los Angeles.

**New York, N. Y.**—The Alliance Ruling Company, Inc., has been incorporated with capital of $10,000, to manufacture and deal in paper machines, including ruling and cutting machines. New company is represented by Milton Sarner, 277 Broadway, New York.



WINDERS *and*

REWINDERS

*Samuel M. Langston Co., CAMDEN, N. J.*

# PAPER TRADE JOURNAL

ESTABLISHED 1872

15 West 47th St., New York, N. Y.

Henry J. Berger
*Editor*

Ronald G. Macdonald
*Editor Technical Section*

Herbert J. Laughton
*Associate Editor*

Thomas J. Burke, C. A.
*Editor Cost Section*

Lynne M. Lamm
*Washington Correspondent*

Price, Per Copy, 10 Cents

United States, Per Annum. $4.00

Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCIX New York, December 20, 1934 No. 25

*This publication is now and always has been printed on paper made in the U. S. A.*


## COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, Wednesday, February 20.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February, 18-20.

CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, week of January 21.

TECHNICAL SECTION, CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, January 23-25.

## MERRY CHRISTMAS

The PAPER TRADE JOURNAL wishes its numerous friends in the pulp and paper industry a Merry Christmas.

Business itself is better and business sentiment is vastly improved over a year ago. This obviously is a happy combination of circumstances that cannot fail to lend to the enjoyment of the holiday season.

Paper men will meet the year that is just about to open with less fear than they have faced the future recently, in large measure perhaps because many of the fears of the past months have not materialized. Business is safe and it will continue to improve. No boom is expected, but it may be confidently expected that the present expansion in trade and industry toward normal conditions will continue. Judging from recent events, the spirit of cooperation between the Government and business which has not fully existed in the recent past, may be looked for to exist more completely in the near future. This much desired consummation cannot fail to have a wholesome effect on the improvement which is now under way. That all paper men will experience a bountiful measure of the prosperity which the New Year promises is the sincere wish of the PAPER TRADE JOURNAL.

## RECOVERY IS REFLECTED IN NINE MONTHS' PROFIT

Corporation reports for the nine months ending September 30, 1934, showed definite gains. While a few still report deficits, these are smaller than for the period last year. In most cases 1933 deficits have been turned into 1934 profits and small 1933 profits into larger 1934 profits.

Net profits, according to a summary by the National City Bank, less deficits, of 190 industrial corporations in 1934 were $321,000,000 as against $182,000,000 in 1933.

In the month of November, 75 corporations paid nearly $43,000,000 in dividends over and above the rates previously prevailing. More than $35,000,000 of this sum was in the form of extra dividends. At the same time, many corporations which had resumed dividend payments announced stock dividends and paid something on dividends previously deferred.

In the last week of November, for the first time since the middle of September, bank clearings showed a gain over the similar week of last year. The difference was 2.2 per cent. The 22 cities outside New York registered a gain of 18 per cent, but the general average was lowered by New York, which ran minus 5.2 per cent.

The *American Banker,* the monthly magazine of the American Bankers' Association, states that the number of depositors in Savings institutions on June 30, 1934, were 52,729,432, and the number the year before, 39,262,442. Further, the magazine reports, 1294 banks which were closed after the banking holiday in 1933 have reopened this year, and the total number of banks now operating on an unrestricted basis is 15,936.

Three hundred employers operating under the machinery and allied products industry held an important meeting in Cincinnati a few days ago. Their deliberations are interesting to the whole business world since it is apparent their consensus is that there is a coming demand for heavy machinery. Many old machines are obsolete and will need to be scrapped. Factories and shops have delayed replacement until a serious situation approaches.

As the year draws to a close it appears that the total output by steel mills for 1934 will be 25 million tons, as against 22 million six hundred thousand last year—a gain of 10.6 per cent.

Some increase in employment is indicated by the advance in the steel industry. The American Iron and Steel Institute reports that payrolls in October totaled $32,723,909, as against $29,142,892 in September, a gain of 12 per cent.

October was an encouraging month for builders. The U. S. Bureau of Labor Statistics has announced that reports from 766 cities, each with a population of 10,000 or more, show that the value of repairs for which permits were issued was higher than for any month since August, 1931. The increase in the value of additions, alterations and repairs over September was 36 per cent. Building

operations were 25 per cent more numerous this October than last and their value was 33⅓ per cent higher.

In the week ending November 24, electric power production stood at 95.3 on the *New York Times* Index as against 89.8 for the corresponding week of last year, an increase of 5.5 points. The index of general business activity reached 76.8, or 3.1 points higher than for the week last year.

## Study Paper Container Industry

To familiarize its operating staff with the needs of employers in various industries, for which it is prepared to supply workers, the New York State Employment Service is making a series of studies, one of the paper container industry having been recently completed.

The study, made by a staff of research workers, illustrated by graphs and charts, outlines the various branches of the industry, listing the products included under the various heads of: set-up boxes, folding boxes, corrugated and fiber board, paper tubes, paper containers and displays, including many unfamiliar uses of these products, such as automobile and refrigerator insulation, and the various forms of dry and liquid containers.

More than one-third of the paper container factories of the United States are located in New York State, the survey finds, 149 firms being located in Manhattan, 86 in Brooklyn, 23 in Rochester, 17 in Buffalo and 16 in Queens. The greatest number of factories have from 10 to 24 employees, the next largest group have less than 10 employees, and the third group 25 to 49 employees.

The seasonal peak for the industry occurs in the months of October to December, though the Employment Service finds that all branches of the industry do not entirely conform to the trend of the industry as a whole. About 10 per cent more workers are employed by the industry in the active than in the dull season.

"Seasonal changes in various branches of the industry do not necessarily coincide," says the N. Y. Employment Service survey. "For instance, activity in the production of millinery set-up boxes may occur simultaneously with dullness in candy boxes. Seasonality within the industry also depends considerably upon the market for particular products. For instance, factories which make boxes and containers for manufacturers of hardware, drugs and bottled goods may produce more steadily throughout the year. Thus workers suffer less from seasonal unemployment than in those lines in which production is most closely and directly affected by sharp seasonal demands for consumers' goods."

Listing the various occupations within the industry the N. Y. State Employment Service finds that about 7.5 per cent of the employees are office workers. In set-up box operations more women are employed generally than men, and in folding box operations, where the operations are 90 per cent by machine, most operators are women. Men are chiefly employed to handle relatively heavy products in the corrugated and fiber board container occupations.

The industry is described by the survey as being "in transition from hand to highly mechanized methods of production."

## Pulp From Sweden Arrives at Albany

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 17, 1934—A steamer carrying 5,500 tons of pulp from Soderhamn, Sweden, arrived here early this week and all facilities of the terminal were used in unloading the cargo in record time.

## Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Industry Production Ratios for the designated periods.

| | Reporting Mills | | Total Production |
|---|---|---|---|
| | Number | Capacity | Ratio |
| September, 1934 | 292–299 | ..... | 59.4% |
| October, 1934 | 297–373 | ..... | 64.7 |
| * Week ending November 3, 1934 | 375 | 156,062 | 64.6 |
| * Week ending November 10, 1934 | 375 | 149,736 | 60.8 |
| * Week ending November 17, 1934 | 386 | 159,560 | 61.2 |
| * Week ending November 24, 1934 | 383 | 154,969 | 60.1 |
| * Week ending December 1, 1934 | 375 | 156,120 | 61.2 |
| * Week ending December 8, 1934 | 313 | 131,437 | 60.3 |

The weekly paper capacity (based on 6 days of 24 hours each) for all mills operating wholly or partially under the General Code for the Paper and Pulp Industry is approximately 175,000 tons. This figure has been tabulated from mill questionnaires and in certain instances from daily capacities given in Lockwood's Directory of the Paper and Allied Trades.

Detailed statistics showing the number of mills reporting by ratio groups are given below:

| | Number of Mills Reporting Week ending | | | | | |
|---|---|---|---|---|---|---|
| | Nov. 3 | Nov. 10 | Nov. 17 | Nov. 24 | Dec. 1 | Dec. 8 |
| Ratio Limits | 1934 | 1934 | 1934 | 1934 | 1934 | 1934 |
| 0% to 50%..... | 149 | 151 | 164 | 158 | 188 | 132 |
| 51% to 100%..... | 226 | 224 | 222 | 225 | 187 | 181 |

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

| | |
|---|---|
| Week ending September 8, 1934 | 53 per cent |
| Week ending September 15, 1934 | 67 per cent |
| Week ending September 22, 1934 | 62 per cent |
| Week ending September 29, 1934 | 64 per cent |
| Week ending October 6, 1934 | 64 per cent |
| Week ending October 13, 1934 | 64 per cent |
| Week ending October 20, 1934 | 64 per cent |
| Week ending October 27, 1934 | 63 per cent |
| Week ending November 3, 1934 | 61 per cent |
| Week ending November 10, 1934 | 58 per cent |
| Week ending November 17, 1934 | 57 per cent |
| Week ending November 24, 1934 | 60 per cent |
| Week ending December 1, 1934 | 49 per cent |
| Week ending December 8, 1934 | 56 per cent |

Revised statistics covering delinquent mill returns will be shown in later reports.

## Canadian Paper Mill Employment Higher

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 17, 1934.—The pulp and paper and lumbering industries contributed in large measure to make employment in Canadian industry higher in November, adjustment being made for seasonal tendencies, than in any other month since the beginning of 1932, with the single exception of March in the present year. This fact is brought out in the monthly business review of the Dominion Bureau of Statistics, just issued, which adds:

"The adjusted index of employment in saw mills moved up from 53.3 to 55.2 during October, the resulting level being higher than at any time since April 1. The gain over November 1 of last year was 14.4 p.c. The pulp and paper industry also added to their mill employees in October for the second consecutive month, the gain in the index being from 84.3 to 85.0. The level of seasonally adjusted employment in logging was higher than in any other month during the period of observation from the beginning of 1921 to the present time except in November 1929. The adjusted gain during the month of October was more than ten per cent."

The above statement also confirms the reports from many forestry centres that operations in the woods this winter are on a larger scale than for several years past.

TAPIOCA FLOURS

KREBET SUPERFINE BRAND

A. C. C. BRAND

Absolutely Clean • Exceptionally Strong Body • Always Uniform

As a beater size will increase Mullen-Tear-Fold & Retention

CYANAMID PRODUCT

AMERICAN CYANAMID & CHEMICAL CORPORATION

30 ROCKEFELLER PLAZA NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

# The Use of Circular Cutter in the Determination of Ream Weight

By Vladimir Tuma[1]

The E. C. R. Cutter[2] was primarily designed for use in the textile industry for the determination of the weigh of fabrics of all types. Although rarely used in the paper industry, its use should be considered seriously, particularly in a small laboratory that already possesses an analytical balance but may lack extensive funds for the purchase of one of the usual types of ream weight balances. Not only is this cutter a valuable adjunct in small laboratories, but it also serves as the basis of an accurate test method in laboratories otherwise well equipped.

The cutter in question has been designed to cut out a circular section exactly 1/400 square yard in area. Since the radius of this circle is guaranteed to be accurate to ±0.002 inch, it is quite apparent that the sections cut out are also very accurate. They are, therefore, very valuable where only very small samples of the paper are available for testing purposes.

The recommended procedure is to cut out at least ten circular sections from various portions of the paper sheet to be tested, to weigh them accurately on an analytical balance either in terms of grains or grams, and then to divide the total weight thus obtained by the number of pieces cut out to determine the weight of one section, that is, the weight of 1/400 square yard of the paper. This weight is then converted to the ream weight by the use of one of the following formulae and the table of conversion factors.

[1] 23-56 Kindred Street, Long Island City, New York.
[2] Made by Alfred Suter, 200 Fifth Ave., New York, N. Y.
EDITOR'S NOTE.—This method is novel in that the author uses a round cutter instead of a square or rectangular type, such as is used in many laboratories.
The TAPPI methods, from the very earliest, describe a very simple method of determining ream weights in the laboratory.
In using a formula, the factor 1.102 will convert the weight in grams for any size sheet directly into the ream weight of the same size sheet on a pound basis.
In other words, if a single sheet of letter paper, 8½x11 inches, on an analytical balance weighs 4.53 grams, then by multiplying 4.53 by 1.102 we get the weight of 5 pounds as the weight of 500 sheets. It is then a simple matter to convert to a folio weight of 20 pounds per ream. This method eliminates any cutting of the sample, and only requires that the sample can be measured, preferably with a scale graduated in tenths of an inch.
Another very common method is to cut out a small square or rectangular sheet of metal of such size that you can cut a sample of paper, using the metal as a template. The sample is then weighed on an analytical balance and read directly in grams or fraction of a gram, the weight of the paper in a ream of any size.
By this procedure you would have one template that would enable you to weigh the sample of paper directly in pounds per ream of 17x22 inches, and another template that would permit you to weigh directly in terms of ream weight 24x36—480 sheets. This eliminates all calculation and your accuracy is the accuracy of cutting the sample and weighing it on an analytical balance.

$$\text{Ream weight in pounds} = K\,w \quad (1)$$
$$\text{Ream weight in pounds} = K'\,g \quad (2)$$

in which
$w$ = weight of 1/400 sq. yd. of paper in grains.
$g$ = weight of 1/400 sq. yd. of paper in grams.
$K$ = factor dependent upon size of sheets when weight is in grains.
$K'$ = factor dependent upon size of sheets when weight is in grams.

The data contained in the conversion tables is merely the extension of the above formulae to take into account the usual trade custom paper sizes.[3] In view of the fact that ream weights are sti'l being reported in terms of 480 sheets as well as 500 sheets, two sets of conversion tables have been prepared.

TABLE I.—REAM WEIGHT ON BASIS OF 500 SHEETS

| Size of Paper | K | log. K | K' | log. K' |
|---|---|---|---|---|
| 17 x 22 | 8.3 | 0.91619 | 127.2 | 2.10463 |
| 19 x 24 | 10.1 | 1.00228 | 155.1 | 2.19072 |
| 20 x 26 | 11.5 | 1.05932 | 176.9 | 2.24776 |
| 20 x 30 | 13.2 | 1.12147 | 204.2 | 2.30991 |
| 22 x 28 | 13.6 | 1.13290 | 209.6 | 2.32134 |
| 22½ x 28½ | 14.1 | 1.15034 | 218.2 | 2.33878 |
| 24 x 36 | 19.1 | 1.27983 | 293.9 | 2.46827 |
| 25 x 38 | 20.9 | 1.32034 | 322.6 | 2.50868 |
| 25 x 40 | 22.0 | 1.34252 | 339.6 | 2.53096 |

TABLE II.—REAM WEIGHT ON BASIS OF 480 SHEETS

| Size of Paper | K | log. K | K' | log. K' |
|---|---|---|---|---|
| 17 x 22 | 7.9 | 0.89846 | 122.2 | 2.08690 |
| 19 x 24 | 9.7 | 0.98455 | 149.0 | 2.17299 |
| 20 x 26 | 11.0 | 1.04159 | 169.9 | 2.23003 |
| 20 x 30 | 12.7 | 1.10374 | 196.0 | 2.29218 |
| 22 x 28 | 13.0 | 1.11517 | 201.2 | 2.30361 |
| 22½ x 28½ | 13.6 | 1.13261 | 209.1 | 2.32105 |
| 24 x 36 | 18.3 | 1.26210 | 282.2 | 2.45054 |
| 25 x 38 | 20.1 | 1.30261 | 309.7 | 2.49095 |
| 25 x 40 | 21.1 | 1.32479 | 326.0 | 2.51323 |

The following specific examples may serve as a more definite guide to the use of the formulae and the conversion tables:

(A.) Ten sections taken from a sheet of brown kraft wrapping paper weighed 0.9036 grams. Ream weight on basis of 480 sheets is desired.

$$\text{Ream Weight} = \frac{0.9036}{10} \times 282.2 = 25.5 \text{ pounds}$$

(B.)—Ten sections taken from a sheet of brown kraft wrapping paper weighed 15 grains. Ream weight on basis of 500 sheets is desired.

$$\text{Ream Weight} = \frac{15}{10} \times 19.1 = 28.7 \text{ pounds}$$

To give some indication of the accuracy of this method

[3] Paper Testing Methods, TAPPI.

of determining the ream weight, the writer conducted rather extensive tests in conjunction with tests on identical paper samples but with the aid of a standard ream weight balance,[4] sheets specially selected by a manufacturer being chosen for these tests. Several sets of such comparative results are given herewith:

[4] Thwing ream weight scale (Thwing Instrument Company, Philadelphia).

TABLE III.

| Sheet No. | Ream weight (480—24x36) By ream weight balance | By described method |
|---|---|---|
| **40-pound brown kraft wrapping paper** | | |
| 11 | 39.5 pounds | 39.7 pounds |
| 12 | 39.7 | 39.8 |
| 13 | 39.6 | 39.6 |
| 14 | 39.6 | 39.8 |
| 15 | 39.8 | 39.7 |
| 16 | 39.4 | 39.6 |
| 17 | 39.4 | 39.5 |
| 18 | 39.7 | 39.7 |
| 19 | 39.8 | 39.7 |
| 20 | 39.7 | 39.8 |
| | Average 39.6 pounds | Average 39.7 pounds |
| **30-pound blue striped kraft wrapping paper** | | |
| 41 | 30.4 pounds | 30.3 pounds |
| 42 | 30.4 | 30.4 |
| 43 | 30.2 | 30.3 |
| 44 | 30.3 | 30.3 |
| 45 | 30.4 | 30.3 |
| 46 | 30.3 | 30.4 |
| 47 | 30.1 | 30.1 |
| 48 | 30.5 | 30.3 |
| 49 | 30.4 | 30.3 |
| 50 | 30.5 | 30.4 |
| | Average 30.4 pounds | Average 30.3 pounds |
| **25-pound brown striped kraft wrapping paper** | | |
| 51 | 24.4 pounds | 24.6 pounds |
| 52 | 24.6 | 24.6 |
| 53 | 24.5 | 24.4 |
| 54 | 24.7 | 24.6 |
| 55 | 24.8 | 24.7 |
| 56 | 24.6 | 24.7 |
| 57 | 24.7 | 24.8 |
| 58 | 24.9 | 24.8 |
| 59 | 24.6 | 24.6 |
| 60 | 24.7 | 24.7 |
| | Average 24.7 pounds | Average 24.7 pounds |

| Sheet No. | Ream weight (480—24x36) By ream weight balance | By described method |
|---|---|---|
| **20-pound bond paper** | | |
| 181 | 20.8 pounds | 20.9 pounds |
| 182 | 20.9 | 20.8 |
| 183 | 21.0 | 20.8 |
| 184 | 20.8 | 20.9 |
| 185 | 20.9 | 20.9 |
| 186 | 21.1 | 20.9 |
| 187 | 20.8 | 20.8 |
| 188 | 20.6 | 20.9 |
| 189 | 20.9 | 20.9 |
| 190 | 20.8 | 20.9 |
| | Average 20.9 pounds | Average 20.9 pounds |

Space does not permit a complete listing of several hundred additional tests, but the above (being representative of the balance of the data collected) should suffice to indicate the accuracy of the described method. In every case the results obtained with this method were as close or even closer to the ream weight specified by the manufacturer as those obtained with the standard ream weight balance.

### Advantages of the Method

The advantages of this method may, therefore, be briefly summarized as follows:

The equipment required is very inexpensive.
Small samples of paper may be tested with as great an accuracy as large samples.
The results obtained are as accurate, if not more so, as those obtained with the usual type of ream weight balance.

All tests were conducted in an atmosphere of 70 degrees F. and 65 per cent relative humidity, the samples themselves being conditioned for a period of six hours prior to testing.

# Decoloring of Paper Machine Broke*

By Frederick W. Binns[1]

In recent years, it has been necessary to rework waste materials and various processes have been devised to make these waste materials more attractive for reuse. There have also been many processes devised to improve the appearance of various products. Foremost in appearance of these materials has been the color of the material. In the textile industry, wool has been reworked, the raw material being obtained from cast-off clothing, sorted into types of material, decolorized and dyed some attractive shade. In the leather industry, considerable work has been done on the bleaching of vegetable tanning agents so light shades can be applied to the leather. In the kaolin industry, natural coloring agents are removed to make the kaolin more brilliant and white.

Recently considerable interest has been shown in the decolorization of paper. In specialty mills making various colored papers, broke accumulates in troublesome quantities and while it is the intention of the foreman of the plant to really use the colored broke promptly, actually the material is stored until they are forced to use this material for the want of space. It is also generally difficult to sort out and readily obtain the colored broke desired. Several mills have found it convenient to immediately return the colored broke to a beater for decolorization.

It is the purpose of this paper to consider that part of decolorization which pertains to the removal of dyestuffs.

### Constitution of Dyes

Before we discuss the removal of dyestuffs, it would be well to rehearse briefly the constitution of dyestuffs so we can more readily understand the effect of various chemicals in the removal of the color. Dyestuffs, whether of natural or artificial origin, are complex compounds of the element carbon, in association with other elements more especially of hydrogen, nitrogen, oxygen and sulphur. Practically all dyestuffs are aromatic compounds. That is, they have their carbon atoms arranged in a closed chain. The primary aromatic compounds are first obtained from coal tar. By the fractionation of coal tar, we obtain first the single ring compounds such as benzene and its homologues, toluene and xylene. Secondly, the compound naphthalene and the last portion, anthracene. From these basic starting materials, the artificial dyestuffs are built up in stages. These materials are converted into so-called intermediate products chiefly by replacing one or more of the hydrogens of the ring compounds with amido ($NH_2$) or hydroxy group (OH); also, the sulphonic group ($SO_3H$), nitro ($NO_2$), nitroso (NO) and halogen group (Cl or Br).

These intermediate products are practically all colorless or slightly yellowish in character and do not characteristically resemble any of the dyestuffs. However, by joining two of these intermediate products by means of a

* Presented at the joint meeting of the New England Section of TAPPI and the Connecticut Valley Division of the Am. Pulp & Paper Mill Superintendent's Association, Hotel Wortley, Springfield, Mass., December 8, 1934.

[1] Chemical Engineer, Virginia Smelting Co., Boston, Mass.

connecting carbon or nitrogen, the molecule becomes much bigger and the material takes on a characteristic color. Further, by varying the type of compounds connected to the ring, we affect the color of these groups which are called chromophors. Other groups which intensify the color are called auxochromes. A great deal has been written about the effect of certain types of groups and their effect on the properties of the dyestuffs.

Now that we have considered briefly the manner in which these dyestuffs have been built, we will now consider the effect of various materials on the breaking down of these complex compounds. There are comparatively few things that the dyestuff can be subjected to at ordinary temperatures without injuring the material which the dyestuff is applied to. We can oxidize the dyestuff using a vigorous oxidizing agent such as hypochlorites, peroxides, or perborates or we can treat the material with reducing agents such as sulphites, hyposulphites or the hydrosulphites. These latter compounds are among the most vigorous reducing agents known at ordinary temperatures. Among these hydrosulphites is zinc hydrosulphite known to the trade as Vasite, developed by the Virginia Smelting Company of West Norfolk, Virginia. Several patents have been issued and others pending regarding the use of this material in the various industries.

This compound is by far the most vigorous and effective reducing agent known. We could further vary the acidity of the bath and obtain possibly some solvent action. This property is made use of frequently in a preliminary stripping bath and used to remove some of the surplus dyestuff. We could further treat the material with some solvent, possibly of the organic variety. However, this method is quite ineffective and rarely used. The vigorous oxidation removes some of the colors by changing the chromophor group to form colorless materials. However, dyestuffs are more affected by vigorous reducing agents and it is this phase of decolorization that we are going to consider.

One of the most common chromophor groups (the group which gives the characteristic color) is the CO group. If a dyestuff contained in this group is treated with sulphurous acid or a bisulphite, an addition product is generally formed which is colorless. This addition product will have the formula $HSO_3$–C–OH which is an unstable compound. The compound is usually colorless. However, if the material is exposed to the action of moisture, heat and light, the compound will break down and revert back to the original CO group and the original color will return.

If the dyestuff is treated using a more vigorous reducing agent, the compound is actually reduced and no addition product is formed, that is the CO group becomes H–C–OH.

### Reduction of Colors

In some cases this reduction permanently changes the compound and will not revert back to the original color. However, in the case of vat colors where this group is present, this new reduced compound will oxidize in the presence of air and other oxidizing agents and revert back to the CO group which will give the original characteristic color.

Now, in the case of the azo dyestuffs where nitrogen is the connecting link between two dyestuff intermediates, we generally have a condition represented graphically as follows $R_1—N=N—R_2$. If this type of compound is treated with a vigorous reducing agent, two things are possible. We can by vigorous treatment sever this compound in two, thus, reverting back to the two intermediates which are generally colorless or slightly yellowish. That is, if we treat the dyestuff with zinc hydrosulphite at a boiling temperature, the dyestuff represented graphically above will become as follows $R_1—NH_2$ and $R_2—NH_2$. Therefore under this treatment, the dyestuff is permanently destroyed and the color will not return. If, however, the compound is only treated with a mild reducing agent at lower temperatures, the following compound may result which will revert back to the original compound when exposed to air or treated with an oxidizing agent $R_1—(NH)—(NH)—R_2$.

The following shows the effect of Vasite on the various classifications of dyestuffs. Those dyestuffs to which the color is not restored by air, are the nitro, nitroso, the azo, the triphenylmethane and the pyrones (red) dyestuffs. Those dyestuffs whose colors are restored upon exposure to air are the azines, oxazines, thiazines, indigoids, pyrones (violet and blue) and the acridines. The dyestuffs which are slowly reduced are the quinolines and the thiazols. The dyestuffs which are not decolorized but are changed in shade completely are the anthracine dyestuffs.

The basic and basic mordant dyestuffs, triphenylmethane and pyrones class which are decolorized are as follows:

*Reds:* Pyronines, acridine red, rhodamines, rhodines, irisamine, magenta, new fuschsine, isorubine.

*Greens:* Malachite green, brilliant green, diamond green, fast green, new fast green, methyl green, ethyl green, iodine green, victoria green, new victoria green, chrome green.

*Blues:* Night blue, victoria blue, new victoria blue, brilliant victoria blue, victoria pure blue, glacier blue, brilliant glacier blue, setocyanine, turquoise blue, rhoduline blue 5B, 6G, chrome blue.

*Violets*: Crystal violet, methyl violet, brilliant violet, benzyl violet, Hoffman's violet, chrome violet.

Those of the azo class which are decolorized are as follows:

*Reds:* Rosole red, rosole scarlet, janus red, and diazine red.

*Orange and yellow*: Chrysiodine, new phosphine, azo phosphine, tannin orange, janus yellow.

*Browns:* Bismarck brown, vesuvine, phenylene brown, janus brown, tannin brown.

The dyestuffs of the thiazols class which are slowly decolorized are thioflavine, methylene yellow and rhoduline yellow.

The salt and sulphide dyestuffs which are completely decolorized:

Azo Class:

*Red:* Pinks, reds, fast reds, scarlets, fast scarlets, brilliant scarlets, garnets, bordeaux, claret, corinths, rubines and maroons of the benzo, benzoform, chloramine, chlorantine, chlorazol, columbia, congo, cotton, diamine, dianil, dianol, diazanil, diazo, diphenyl, direct, formal, glycine, hessian, naphthamine, oxamine, oxydiamine, para, paranil, rosanthrene, sultan, titan, toluylene, etc., series. Autochrome red, acetopurpurine, anthracene red, azo purpurine, benzo fast eosine, benzopurpurine, brilliant purpurine, deltapurpurine, diazo geranine, erika, geranine, rosanol, rosazzurine, solamine red, rosophenine, trona red.

*Yellow, Orange and Brown:* Yellows, oranges, cathechins, browns, dark browns, etc., of the benzo, benzoform, catechu, chicago, chlorazol, congo, cotton, cupranil, diamine, dianil, diazo, diphenyl, hessian, naphthamine, oxamine, oxydiamine, para, paranil, pluto, pyramine, renol, toluylene trisulphon, zambesi, etc., series. Autochrome orange, brilliant orange, brilliant yellow, chrysamine, chrysophenine, cresotine yellow, cutch browns, diamine gold, direct browns, polar yellow R Conc., polar orange, poplar red.

*Green:* Greens, dark greens and olives of the azzidine, benzo, chloramine, chlorantine, chlorazol, columbia, diamine, dianil, dianol, diazo, diphenyl, direct, eboli, naphthamine, oxamine, para, paranil, renol, triazzol, etc., series.

*Blue:* Blues, sky blues, brilliant blues, pure blues, new blues, fast blues, steel blues, navy blues, indigo blues, blue blacks, cyanines, azurines, etc, of the Benzo, benzoform, chicago, chloramine, chlorantine, chlorazol, columbia, congo, coomassie, cotton, diamine, diamineral, dianil, dianol, diazanil, diazo, diphenyl, direct, eboli, formal, hessian, indigene, naphthamine, naphthogene, oxamine, oxychlorazol, para, polyphenol, renol, solamine, sulphon, toluylene, zambesi, etc., series. Autochrome blue B, cupramine brilliant blue, diaminogen, diazurine, indazurine, metazurine, naphthazurine, oxydiaminogen, sulphoncyanines, tolyl blue Gr and 5R.

*Violet:* Violets and heliotropes of the Benzo, benzoform, brilliant congo, chloramine, chlorazol, columbia, diamine, dianil, diazo, diphenyl, direct, formal, naphthamine, oxamine, oxydiamine, para, rosanthrene, trisulphion, etc., series. Azo mauve, azo violet, benzo fast heliotrope, chlorantine lilac, hessian purple.

*Black:* Blacks, fast blacks, jet blacks, deep blacks, greys, etc., of the benzo, chloramine, chlorazol, columbia, coomassie, cotton, diamine, diamineral, dianil, dianol, diazanil, diphenyl, direct, formal, indigene, fingrain, isodiphenyl naphthamine, oxamine, oxydiamine, para, paradiamine, paranil, pluto, plutoform renol, titan, toluylene, zambesi, etc., series. Diamine neron, melantherin.

The acid and acid mordant dyestuffs which are decolorized are those of the azo, nitro and nitroso group as follows:

Those of the triphenylmethane and pyrone class are as follows:

Fluoresceine, uranine, eosine, phloxine, erythrosine, rose bengale, methyl eosine, easine scarlet, syanosine, metachrome violet.

Fast acid eosine, fast acid phloxine, fast acid magenta, acid rosamine, acid rhodamine, sulpho rosazeine, xylene red, brilliant kitone red, chromorhodine, acid magenta, acid violets, alkali violets, formyl violet, guinea violet, kitone violet, fast acid violet 10B, patent blues, erioglaucine, eriocyanine, neptune blue, xylene blue, kitone blue, brilliant acid blue, cyanole, cyanine, alkali blues, soluble blues, water blues, methyl blues, wool blue, brilliant milling blue, isamine blue, brilliant dianil blue, brilliant chlorazol blue, acid greens, guinea green, neptune green, brilliant milling green, erioviridine, light green, wool green, agalma green, napthalene green, cyanol green, alkali fast green.

The dyestuffs which are insoluble in water that are of Sulphide, Mordant, Pigment dyestuffs which will decolorize are as follows:

Mordant Dyes of the Nitroso and Azo Classes:

Alizarine yellow 2G, R, anthracene yellow 2G, Russian green, gambine, fast printing green, Alsace green, resorcin green, dioxine, fast green O viridone FF.

Nitro and Azo Classes:

Sudans, butter yellow, cerasine orange, oil yellow, oil orange, tuscaline orange, pigment chlorin, lithol fast yellow, pigment chrome yellow, cerasine red, lithol fast orange, lithol fast scarlet, autol reds, helio fast red, hansa yellow, hansa red, lake reds, sitara fast red, pigment orange, pigment red, pigment claret, permanent reds, pigment purple, oil scarlet, oil red, oil vermillion.

Azine and Triphenylmethane Classes:

Nigrosine (Spirit Sol.), induline (Spirit Sol.), malasine, oil black, spirit black, spirit blue, oleate green.

### Zinc Hydrosulphite

The preparation of the zinc hydrosulphite (Vasite) is very important but can be easily accomplished. Zinc hydrosulphite is an unstable compound and should be freshly prepared for the most effective use. There has been offered to the trade zinc hydrosulphite powder of questionable purity. This is because of the difficulty of salting out and proper drying of the material. Even if this is accomplished in a most efficient manner, when the material is dissolved in water again, the solution does not have the same vigorous reducing properties that the freshly prepared material has. It has, therefore, been found more advantageous to prepare the solution at the plant of the consumer and the solution used same day it is made.

The equipment necessary to produce this material is a simple mixing tank, usually made of wood, equipped with an agitator and a cooling coil. The tank is filled to the proper level with water, the agitator started and the proper amount of finely divided zinc dust is added, then liquid sulphur dioxide is added, the temperature being kept below 100 deg. F. There is an immediate combination between sulphur dioxide and zinc dust to form zinc hydrosulphite in accordance with the following equation $Zn + 2SO_2 - Zn\ S_2O_4$. This reaction is 100 per cent efficient and can be easily tested using a standard solution of indigo. However, precautions must be taken, that at no time should there ever be an excess of sulphur dioxide above the amount which will combine with the zinc dust, for if the solution becomes acidic, rapid decomposition occurs.

The solutions are generally prepared containing approximately 1 or 2 pounds of sulphur dioxide to the gallon. This will produce 100 per cent zinc hydrosulphite to the extent of 1½ and 3 pounds to the gallon respectively.

The amount of zinc hydrosulphite solution required for decolorization varies with the type of material to be decolorized between the limits of 5 per cent and 25 per cent of the 1½ pounds per gallon solution based on the weight of the material to be decolorized.

Experience teaches that the best temperature to add the zinc hydrosulphite is about 140 deg. F. If the solution is brought to a boil, within 20 minutes to a half hour, from the time of adding the zinc hydrosulphite, the most effective bleaching action is obtained. If the solution is brought to a boil at a faster or slower rate than the above, internal decomposition of the hydrosulphite takes place without effective bleaching action.

Certain stabilizing agents, generally aldehydes and ketones, can be added and if a sufficient amount is added, the hydrosulphite is permanently stabilized. This, however, raises the temperature at which the compound will decompose to give a bleaching action. The addition of these reagents also adds considerably to the cost and if a light color is to be decolorized and a very good white obtained, these organic materials tend to yellow the material, therefore, zinc hydrosulphite, known to the trade as Vasite, in a freshly prepared condition is a most satisfactory stripping compound.

## L. W. Douglas Joins American Cyanamid

Lewis W. Douglas, who resigned as Director of the Budget on September 1, has been elected vice president and a director of the American Cyanamid Company. As a director, he fills the vacancy caused by the recent death of W. R. Cole.

Commenting on the acceptance of his new position, Mr. Douglas said: "I have accepted this position because I must work to make a living. My previous training has practically all been in the mining business, and the company with which I have become connected is a producer of metallurgical products. It is a type of company with which I like to work."

# The Cause of Fiber Orientation In Paper*

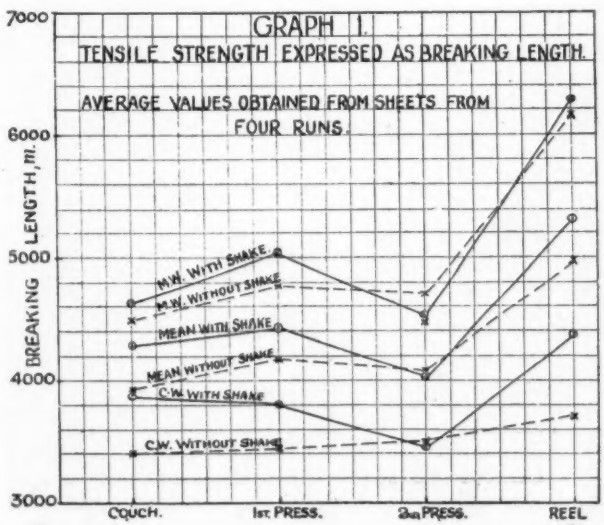
By J. A. Robertson and F. W. Bailey

Paper which has been made on an ordinary fourdrinier machine has a higher tensile strength in the machine direction than in the cross direction; also, the elongation that occurs under tension up to the breaking point is greater in the cross than in the machine direction. Similar differences are found when the paper is tested for other properties, such as the resistance to folding or tearing, and the expansion of the paper on taking up moisture. This anisotropy may be safely ascribed to the fact that the fibers in the paper lie with their axes more nearly parallel to the machine than to the cross direction. This orientation of the fibers is generally believed by paper makers to be due in some way to the flow of the pulp from the breast-box to the wire of the machine. Assuming stream-line flow, it is to be expected that, when a suspension of pulp flows past stationary objects, such as the apron or slices (or even the wire, if moving at a different velocity), layers traveling at different velocities will be formed, and will tend to arrange the fibers in the direction of the flow. It is largely for this reason that a lateral shaking motion is given to a portion of the wire part of the machine. The action of the shake is supposed to be either to rearrange those fibers which have become thus oriented, or to counteract the effect by assisting those, not already fixed, to deposit themselves in a direction at right angles to the motion of the wire. It is admitted that other useful purposes are served by the shake of the wire part, for example, the "closing" of the sheet by the movement of fibers still in suspension to those parts deficient in pulp.

It is generally found that papers made on an M.G., especially a lick-up M. G. machine, do not show this orientation of the fibers to the same extent as papers made on a machine with a number of drying cylinders, although the wire parts of the two classes of machines may be similar. It would appear, therefore, either that the shake does not play such an important part in the rearrangement of the fibers as is generally believed, or that orientation of the fibers may be caused by other factors. With this in view, the experiment was made of running a paper over a small fourdrinier machine with and without using the shake, and testing the papers made for strength and elongation under tension. The plant used was that at the Manchester College of Technology. The furnish consisted of chemical wood pulp and broke beaten in a small Hollander for about four hours to 300 on the Canadian freeness tester, and sized with 2 per cent of rosin, and 4 per cent of alum. The machine ran at about 6 meters per minute. The shake, when used, had an amplitude of 4 mm., and a frequency of 250 per minute. The consistency of the pulp flowing to the wire was 0.4 per cent. In view of the large number of variable factors which might affect the results, and the difficulty of ensuring that they were maintained the same throughout the run, it was decided that as many repeat tests as possible should be made. When the run had been in progress a short time and the conditions appeared to be regular, a set of samples was taken with the shake in action. Immediately they had been obtained, the shake was stopped and when the paper had run the length of the machine, a second set of samples was taken. This procedure was repeated until the supply of pulp was exhausted, and eight sets had been obtained, four with the shake and four without. A set of samples included sheets from the reel, the second press, the first press, and the couch. These latter, that is, those taken in the wet state, were dried on a single cylinder so that, while being kept flat, they were free to shrink similarly in all directions. After being kept for a week, the samples were tested for tensile strength and for elongation, and the breaking lengths calculated. Average values for the results are given in the tables and are shown plotted in the graphs. Each figure for breaking length or elongation is the average of ten tests on each of four papers.

It is probably safe to assume that the ratios of breaking length or of elongation in the machine direction to those in the cross direction are a criterion of the degree of orientation of the fibers in the paper. Further, when the strength or the elongation is the same in both directions, that is, when the ratio equals unity, then the fibers will be distributed at random, and there will be no orientation. Therefore, the orientation can be measured by the difference between this ratio and unity.

Examination of the results given in the table and in graph 1 and comparison of those obtained from the samples from the reel with those from the couch and presses shows that there is an increase in strength, especially during the passage of the paper over the driers. This increase, while only slight in the cross direction, is considerable in the machine direction, so that the ratio between them is greater at the reel than at the couch. In fact, the increase in the ratio during the passage of the paper over the machine is greater than in the sample from the couch. This is seen more clearly in graph 3, where the amount of orientation is shown at the various parts of the machine. Unfortunately, it was not possible to remove a sheet from the wire before it had passed through the couch-rolls. Had one been able to do so, it is probably justifiable to assume that the effect of the couch would be similar to that at the presses, and that the ratio would have been less at that stage than in the paper after the couch. The generally greater strength of the sheet made with the shake than without can be ascribed to better distribution of the pulp.




* Paper read at Northern Division Junior Meeting, Technical Section, Paper Makers' Association of Great Britain and Ireland, Manchester, England. World's Paper Trade Review, March 30, 1934.

TENSILE STRENGTH EXPRESSED AS BREAKING LENGTH IN METERS

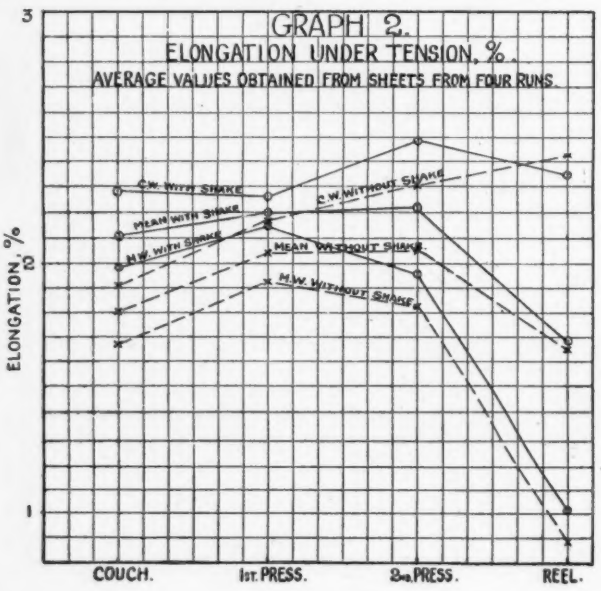
| Samples from.... | Couch | | 1st Press | | 2nd Press | | Reel | |
|---|---|---|---|---|---|---|---|---|
| Shake | With | Without | With | Without | With | Without | With | Without |
| Machine way.. | 4620 | 4490 | 5060 | 4880 | 4560 | 4770 | 6240 | 6180 |
| Cross way..... | 3930 | 3410 | 3800 | 3440 | 3460 | 3500 | 4390 | 3720 |
| Mean ..... | 4270 | 3950 | 4430 | 4160 | 4010 | 4140 | 5320 | 4950 |
| Ratio $\frac{\text{M. W.}}{\text{C. W.}}$ .. | 1.18 | 1.32 | 1.33 | 1.42 | 1.32 | 1.36 | 1.42 | 1.66 |
| Ratio $\sim 1$.... | .18 | .32 | .33 | .42 | .32 | .36 | .42 | .66 |

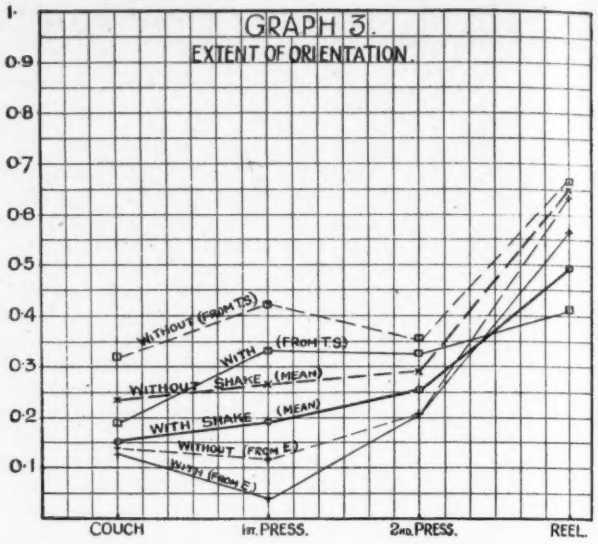
ELONGATION PER CENT UNDER TENSION AT THE BREAKING LOAD

| Samples from.... | Couch | | 1st Press | | 2nd Press | | Reel | |
|---|---|---|---|---|---|---|---|---|
| Shake | With | Without | With | Without | With | Without | With | Without |
| Machine way.. | 1.97 | 1.66 | 2.16 | 1.93 | 1.96 | 1.83 | 1.01 | 0.89 |
| Cross way..... | 2.27 | 1.93 | 2.25 | 2.19 | 2.49 | 2.31 | 2.35 | 2.44 |
| Mean ..... | 2.12 | 1.80 | 2.20 | 2.06 | 2.22 | 2.07 | 1.68 | 1.67 |
| Ratio $\frac{\text{M. W.}}{\text{C. W.}}$ .. | 0.87 | 0.86 | 0.96 | 0.88 | 0.79 | 0.79 | 0.43 | 0.36 |
| Ratio $\sim 1$.... | .13 | .14 | .04 | .12 | .21 | .21 | .57 | .64 |
| Mean of both values of ratio $\sim 1$..... | .155 | .23 | .185 | .27 | .265 | .285 | .495 | .65 |

Examination of the values for elongation confirms the deductions stated above. Both with and without the shake, the elongation in the machine direction in the sample from the reel is less than in that from the couch, while in the cross direction it is greater. The effect of this upon the ratio between the two is, therefore, considerable, and appears to be little affected by the shake. The reason for the slight increase in the ratio during passage through the first press is not obvious. Although there is some disparity between the values for orientation at the presses, as obtained from the strength and from the elongation, the average results are fairly consistent. It would appear that the rolling action of the presses, or the stretching of the paper between the draws and between the drying cylinders, has had the effect of orienting the fibers. This phenomenon is analogous to the increase in strength obtained by spinning artificial silk under tension, which, according to Mark (J. Soc. Dyers and Col., 1932, 48, 53), is due to orientation of the micelles caused by the stretching of the filaments.

The effect during drying is very pronounced, and this would point to the conclusion that it is the stretching of the sheet (or rather the prevention of shrinkage during drying) which is the important factor in governing the relative values for the properties of a paper in the machine and cross directions. In any case, although the fibers are already oriented before the paper leaves the couch, the effect is much greater during its subsequent passage over




the machine, particularly during drying. The shake mitigates the effect appreciably, but, if it is to be reduced materially, it would appear that the drives for the different parts of the machine would require more careful control. While it would not be safe to be dogmatic in basing deductions on the results of one experiment, especially on a machine small compared with those used in industry, it was felt that the experiment was of sufficient interest to justify mention.

We are glad to acknowledge the help of A. E. J. Leney and J. R. Spence with the experimental part of the work.

## To Make Pulp From Onigaya Grass

WASHINGTON, D. C., December 19, 1934—Japanese reserves of pulpwood have been greatly reduced by the unrestricted exploitation of Saghalien forests during the past 10 years, and various paper companies are attempting to produce pulp from other sources, according to a recent report from the office of the American Commercial Attache, Tokyo. Many years ago a number of Japanese paper companies experimented with the Taiwan "onigaya" grass, a type of Miscanthus, but their efforts to produce a suitable pulp for paper making were not successful. It is now reported that the chief engineer of the Taiwan Paper Manufacturing Company has succeeded in producing excellent pulp from this grass, and that a new company, capitalized at 5,000,000 yen, has been organized for the purpose of converting this grass to pulp. The capacity of the new company's plant will be 10,000 metric tons, annually.

## Cartiere Burgo Joins TAPPI

The first Italian paper company to become a corporate member of the Technical Association of the Pulp and Paper Industry is Cartiere Burgo of Italy. This company has mills at Verzuolo, Corsico-Pavia, Treviso, Romaynano Sesia and Mantovo. The administration headquarters and research laboratories are situated at Torino, Italy. There is also a mill at Polzer, Austria.

The products of Cartiere Burgo include news, writing, book, wrapping, poster, imitation art, cardboard, M. G. and M. F. papers and wood pulp.

Mr. Luigi Burgo, president of Cartiere Burgo, will be the representative of the company in the Technical Association.

# The Application of Rubber to Paper Fibers*

By H. B. Townsend[1]

Although rubber is one of our commonest engineering materials and one which is a decided function of our daily life, the true value of rubber is greatly underestimated. We have seen some organizations, recognizing the nature of the problems connecting rubber with paper fibers, that have solved the difficulties and have in the past four or five years produced and sold tons of rubber-fiber products. This success has been obtained after the previous discouragements of a decade or so ago when tests with rubber proved unsuccessful.

It is my purpose to review, without prejudice as to what forms of rubber may be concerned and the general state of the art as it exists today. Many of the processes, materials, or combinations that I will discuss are the bases of patents. However, for the sake of brevity we will forget any patent complications in this review.

Rubber is a solid. Chemically, it is a hydrocarbon of complex constitution $(C_6H_8)_x$ which occurs in the sap of a certain type of tree native to the tropics. Although originally found chiefly in South America in a wild growth, extensive planting, cultivation, and grafting have resulted in the plantations in the Far East as today's major source of rubber. The liquid sap or latex of the rubber tree is obtained by tapping, collecting at frequent intervals from cups hung around the tree trunk, eventually bulking the meager amounts of latex so obtained, and preserving with anhydrous ammonia. It can be stated that latex contains about 38 per cent solids, about 90 per cent of which are essentially rubber hydrocarbons. The 60 or more per cent of non-solid material is a watery serum developed by the rubber tree.

### Properties of Rubber

Latex is the source of all rubber. However, it is not normally treated with ammonia unless it is to be shipped as latex. The ordinary solid rubber which still forms the bulk but a decreasing percentage of rubber manufactures, is obtained from unammoniated latex by coagulation or precipitation of the solids by heat, chemical, or some mechanical manipulation.

Before going to the particular applications of rubber and paper fibers, it is well to mention a few of the fundamental characteristics of rubber. In addition to the stretching properties of rubber, we should consider its adhesive and cohesive strength, its flexibility, its elasticity, its nerve, and, when vulcanized, its ability to return to shape after deformation, the high energy that vulcanized rubber may contain, its abrasion and tear resistance, its non-tackiness, and of course its resistance to change in properties when either extremely cold or moderately hot.

Rubber is almost always compounded with something. The treating of rubber with sulphur revolutionized the rubber industry, for sulphur is capable of producing a "change" called vulcanization. The action of sulphur, which originally required high temperatures for its addition to the unsaturated rubber hydrocarbon molecule, now can be brought about in what we might colloquially say "the twinkling of an eye" and at normal or slightly elevated temperatures. Latex itself may be vulcanized and still maintain its fluid properties, and then we have a material known as Vultex. Vulcanization of any form of rubber imparts energy to the rubber hydrocarbon. Instead of being a lazy servant, it becomes the master. Even at the risk of repetition, I want to restate that properly vulcanized rubber is responsible for present day quality of rubber goods.

### Means of Application

Rubber may be incorporated with paper fibers by three distinct processes to give a homogeneous rubber-fiber sheet formation. These three basic processes, capable of numberless variations, are: (1) incorporation of rubber prior to sheet formation; (2) incorporation during sheet formation; and (3) incorporation of rubber after sheet formation.

The first method is commonly called the "beater process." Here the fiber in its customary slurry and perhaps only very lightly hydrolized has rubber deposited on it from a latex type of rubber. It may be compounded or added as Vultex and eventually coagulated on and around the fibers by chemical, heat, or mechanical action, in fact, this coagulation of the rubber is somewhat like the coagulation of a rosin size by alum. The slurry so formed is then discharged from the beater and formed into a sheet in the customary manner. In this process it will be observed that the beater merely serves as a means of mixing the rubber and fiber together. Mixing could be done just as well in some other equipment, as for instance, in the stuff chest.

The second method of incorporation would be to apply the latex type of rubber by spraying, dipping, doctor roll, or some equivalent method at the time the sheet is being formed on the machine. Here the rubber must again best be coagulated promptly to avoid contamination of equipment. Coagulation may result due to the presence of alum in the sheet, the acidity of the sheet, or may be brought about by the action of heat or acid fumes.

The third method of incorporation is the saturation of the sheet after it has been formed. This method is, of course, particularly designed for those companies who do not manufacture paper but who stand in the position of converters. It is the paper manufacturer, however, who produces a type of stock which will be readily saturated by a latex type of rubber. Here we find that the sheet must be highly absorbent, porous, un-sized, non-acid, and most companies engaged in saturation prefer to use a relatively long fibered stock. Methods of saturation are an art in themselves, and each type of paper may require different methods of treatment. It may be advisable, for instance, to dilute the latex compound, to add penetrating agents to the compound, to initially wet the sheet, apply pressure, vacuum or temperature effects, and uneven speed rolls are also suggested as a means of forcing the rubber into some types of paper. Many of these rather soft, absorbent saturating papers when wet with the water from the latex type of compound have little wet strength. This may be overcome by the use of a special sizing of the paper which is not deleterious to its impregnation rate, or conveyors for the wet sheet may be necessary. Ultimately, the rubber is coagulated, and evaporation of the dispersing phase may serve as the means of coagulating.

The results which may be obtained in the first two methods of incorporation of rubber are twofold. First,

* Presented at the joint meeting of the New England Section of the Technical Association of the Pulp and Paper Industry and the Connecticut Valley Division of the Am. Pulp & Paper Mill Superintendents Association, Springfield, Mass, Dec. 8, 1934.

[1] Vultex Chemical Company, Cambridge, Mass.

we should consider the changes in manufacturing practice which result through the use of rubber as the cementing agent for the fiber, rather than the formation and use of cellulose hydrates. When using rubber as the cementing agent for fiber, there is marked reduction in power consumption. This is due to the fact that it is no longer necessary to hydrate the fiber to secure sufficient bond. It will also be found that a stock containing rubber will have a slowness on the paper machine which gives for a high degree of uniformity in the sheet. There is little tendency for any wildness in a paper stock containing rubber. These advantages reflect a change in manufacturing operations. If a wet machine were to be utilized for the formation of a rubber-fiber sheet, slipping of the stock on the makeup roll is to be expected, unless adequate removal of moisture from the slow stock is made, probably best by use of additional suction boxes. It would also be advisable to use a more open felt and to clean the felt very thoroughly by the addition of beaters and water sprays to prevent any plugging of this delicate and expensive portion of a paper maker's equipment. It is worthy of note that in the use of vulcanized latex, the tendency for plugging of a felt is decreased. This is because the coagulum resulting when Vultex is used is much drier and has little or no tendency to stick to the felt.

In addition to these manufacturing values, the characteristics of the product obtained should be enumerated. A small amount of rubber added to paper fiber will increase the fold resistance remarkably. The paper has the ability to flex without cracking, and in heavy sheets such as would be produced on multiple cylinder machines or in a wet machine, there will be a marked flexibility to the stock, a high tear resistance, and the ability to hold stitching. Many of these properties are valuable in the shoe industry. The rubber incorporated with the fiber presents a smooth surface after calendering which is excellent for printing. When much rubber is admixed, the product will have a rubbery surface drag, and heavy weight sheets may be built up as a result without the use of intervening cement by plying the sheets under pressure. The stock is also highly resilient and tends to come back into shape after being deformed. It is also possible to maintain a very remarkable porosity so that the paper stock will breathe and at the same time give a maximum protection of fiber against a reaction with reagents which would disintegrate the fiber. Pyroxylin or rubber coatings are frequently used to cover the base stock and give simulated leather appearance.

In almost every case it is necessary, where long life is desired, to convert the rubber at some stage of its processing into the vulcanized form in order to maintain the characteristics of the resultant combination over a wide temperature range, as well as maintain ageing properties. The rubber-paper mixtures, to serve some particular use, may be compounded with numerous materials, many of them already in use in the paper plants, such as rosin or other types of resins, as for instance phenolic resins, asphalts, starches, gums. Wax, softening oils, especially hydrogenated tallows, glycerine, also serve a particular purpose. The addition of stiffening agents such as glue, casein, or mineral fillers, also may be indicated in certain types of products. Coloring ingredients, either pigments or dyestuffs, are also frequently found. Rubber serves a particular value in the combination of mineral loading with paper. This is because the rubber aids in retention of higher proportion of such mineral loading in the paper and decreases the loss of fiber or mineral prevalent when open systems of paper making are used.

### Use as a Coating Material

Rubber is also suitable as a sizing or a coating upon a previously formed sheet. As a sizing medium, the property of rubber with resistance to moisture is very apparent. Properly compounded and vulcanized, the rubber also becomes excellent in its resistance to greases and certain oily materials. The fact that friction coagulates most latex formulations has, however, not readily allowed of the substitution of rubber in the regular stack sizing operation. It would customarily be applied by means of a fountain application, tub sizing, or some type of coating machine.

Rubber is being used as coatings upon magazine papers, one method being to replace in whole or in part the casein used in clay coating work. Here it is claimed that better printing qualities, higher flexibility, and greater resistance to moisture are obtained. Colored rubber formulations may also be used for production of various colored coatings.

The final application which I will mention relates to the use of rubber as an adhesive. Such adhesives are capable of producing flexibility and permanency that cannot be obtained by the use of the customary starches, gums, or silicates. When sufficient amounts of adhesive are utilized, a continuous film of rubber may be obtained over the surface so that a paper product plied together and bonded with rubber may show little moisture passage and a bond so flexible but still so tight that to rip it apart results in destruction of the paper itself.

### Old Difficulties Surmounted

The old ideas which so many of us have held, due to the unfavorable early experiments with rubber have today been overcome by diligent research. Claims previously made that the early decomposition of rubber in conjunction with woody fibers containing abietic acid or rosin complexes is to be expected, today hazards no real difficulty, for since that time the rubber industry has swung into the use of antioxidants which are capable of protecting against such attack, and paper fibers have undergone processes that remove such deleterious materials. By control of technique, it has also been found possible to regulate the size of the rubber coagulum deposited and to prevent the flocculation or existence of large rubber particles throughout a paper sheet, which formerly caused so much disgust to the paper manufacturer. Although problems are nearly always present in any manufacturing industry, it is my firm belief that as far as rubber and paper fibers are concerned, the time for skepticism has passed. Vulcanized latex has played a prominent part in past dvelopments and sincerely hopes to continue to be of service to the paper industry.

## Brown Instrument Co. Merges

The Brown Instrument Company, of Philadelphia, Pa., announces a consolidation with the Minneapolis-Honeywell Regulator Company, of Minneapolis, Minn. The Brown Instrument Company will continue as a separate company with its existing organization, but as a subsidiary of the Minneapolis-Honeywell Regulator Company.

Richard P. Brown will continue as president of the Brown Instrument Company and will become an officer and director of the Minneapolis-Honeywell Regulator Company.

The Brown Instrument Company sales and service facilities will be continued from the present main office and factory at Philadelphia and the district offices located throughout the country.

# Pulp and Paper Industry Literature Review

**Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman**

**Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.**

### Raw Materials

**Sardinian Raw Materials for the Manufacture of Cellulose.** F. Deplano. Rend. seminario facolta sci. univ. Cagliari 2:15-23 (1932); C. A. 28:5977.—Treatment of *Opuntia ficus indica* L. and *Chamaerops humilis* L. with electrolytic alkali hypochlorite solution at ordinary temperatures and pressures yields completely white and relatively pure lignin-free cellulose having an alpha-cellulose content of 80.7-76.21 percent. and a copper number of 2.21-2.14. The yield is 35.4-41.3 percent.—C. J. W.

**Cotton or Wood Cellulose?** M. Steude. Mitt. Lab. Peter Temming A.-G. Glückstadt (Holstein) 1933. 20 p. C. A. 28:5978.—Comparative analyses and spinning experiments with Temming linters and with Canadian and Norwegian wood celluloses are described. The linters are differentiated from the wood cellulose by their higher alpha-cellulose content (98.5 against 88.5 percent), lower ash content, greater whiteness and somewhat lower viscosity, as determined according to Ost. They give off no colored hemicellulose in the mercerizing liquor; the yield with the linters is about 10 percent higher with wood cellulose.—C. J. W.

**Rayon Cellulose.** Silk and Rayon 8, no. 8:352-353, 374 (Aug., 1934).—A general article discussing wood as a rew material for rayon manufacture and the different control processes employed during the various stages. In conclusion it is pointed out that, in spite of numerous physical and chemical tests, it is not yet possible to predict exactly how a given pulp will behave in the different silk making processes.—C. J. W.

**Qualitative Demands and Quantitative Possibilities.** E. W. Ronge. Svensk Pappers-Tidn. 37, No. 13:409-410, 413-416, 421 (July 15, 1934).—A discussion as to what extent the forest supplying the raw material can satisfy the demands of the wood consuming industry for improved quality and shows that the problem is a mutual one which can be solved by cooperation between the two departments. —C. J. W.

**The Effect of Old Sweep Wood on Mill Operation.** L. E. Kendall. Pulp Paper Can. 35; 468-470 (Aug., 1934). —Data are presented and discussed of newsprint mill operations carried out without sweep and using mostly or entirely sweep wood. As far as possible, the latter should be used only for the production of sulphite pulp, for which purpose its drawbacks are: more rapid dulling of chipper knives and slight loss of digester capacity, steam and chemicals. Sweep wood can be made into a satisfactory grade of news groundwood, but at an appreciably higher cost, and control of operations is more difficult.—A. P.-C.

**Identification and Microscopy of Woods and Wood Fibers Used in the Manufacture of Pulp.** Ellwood S. Harrar and J. Elton Lodewick. Paper Ind. 15; 630-637 16:103-111, 327-335 (Feb., May, Aug., 1934).—A liberally illustrated description of the structure and microscopical characteristics of the chief coniferous and hardwood species used for the production of paper pulp.—A. P.-C.

**Concerning the Algae of the Sargasso Sea and the Problem of Its Utilization in the Pulp and Paper Industry.** Hottenroth. Papier-Fabr. 32, No. 30: 337-38 (July 29, 1934).—A few facts and generalizations on the subject.—J. F. O.

**Substitution of Refined Pulps for Rags in the Manufacture of High Class Papers.** C. A. Fotieff. Zellstoff U. Papier 14, No. 3: 105-07 (March, 1934).—High grade pulps were cooked and tested, and compared with rag stock in chemical and physical properties.—J. F. O.

### Cellulose and Lignin

**Size and Structure of the Cellulose Molecule.** A. af Ekenstam. Svensk Kem. Tid. 46, no. 7: 157-167 (July, 1934).—The viscosity of solutions of cellulose dissolved in acids formed the basis for the molecular weight determinations. Cotton, filter paper, sulphite and sulphate pulps were dissolved in varying strengths of sulphuric, nitric and phosphoric acids. Molecular weights were calculated by means of Freudenberg's formula. The decrease in molecular weight with increase in total time of solution of the cellulose was plotted and extrapolation to zero time considered to give the original molecular weight. The greater the concentration of cellulose in the solvent the smaller the corresponding molecular weight. No positive value for the latter is advanced. Application of the method to cellulose derivatives indicated that cellulose had suffered significant decrease in molecular weight.—C. J. W.

**Changes in Cellulose in Alkaline Solutions.** D. Krüger and H. Grunsky. Melliand Textilber. 15, No. 9:405-408 (Sept., 1934).—A comparison is made of variations of different indices often used to indicate degree of degradation of cellulose when treated with boiling lye, exposing to cold alkaline oxidizing solutions, mercerizing and pre-ageing of alkali cellulose. It appears that none of these methods offers a dependable method for indicating chain-length, due partly to non-dependability of method and partly to unknown effect of non-cellulosic constituents.—C. J. W.

**Physical Structure and Sorption Phenomena of Cellulose.** W. Boyd Campbell. Paper Trade J. 99, No. 6: 33-35 (Aug. 9, 1934).—A discussion of the structure of cellulose fibers and of its absorption and desorption of vapors, with an explanation of the nature of fiber bonding in paper making, in the light of the work at present under way at the pulp and paper division of the Forest Products Laboratories of Canada.—A. P.-C.

**Relations Between the Intimate Structure and Mechanical Properties of Fibers and Their Solutions.** R. Michel-Jaffard. Chimie & Industrie Special No.: 768-783 (April, 1934).—A general discussion and explanation of the present status of the question, from which it is concluded that the mechanical properties of cellulosic fibers and their solutions seem to be governed by the following factors: (1) the elongated form of the molecules which is responsible for the relation between the viscosity and concentration of their solutions; (2) the mechanical properties of the crystalline particles, formed

by their assemblage, which follow Maxwell's law; (3) plastic heterogeneity which produces hysteresis; (4) organization, either mechanical or biological, of the fibers by orientation of the crystalline elements without change in the network, resulting in increase in their strength and decrease in their plasticity; (5) biological organization into fibrils and layers, varying in permeability and probably also in their chemical constitution, which gives natural fibers their characteristic properties.—A. P.-C.

**Structure of Cellulose and Its Derivatives.** M. Mathieu. Compt. Rend. 198: 1434-1436 (1934).—Accurate determination of the diffraction angle of the spot $A_4$ as 11°19′ ±9′ confirms Andress' view that the planes of the glucose rings in cellulose are parallel to the *a* and *b* axes (in contrast to Astbury's view that they are parallel to *b* and *c*). The corresponding distances, *d*, in cellulose and some of its derivatives, *e.g.*, those containing perchlorate, amino and methyl groups, are approximately equal, indicating that these substituents probably lie in the plane of the ring, whereas in the alkali celluloses *d* is increased, indicating that the alkali molecules are at least partially between the planes of the rings.—A. P.-C.

**Addition Compounds of Cellulose with Water or with Caustic Soda.** G. Champetier. Chimie & Industrie Special No.: 814-818 (April, 1934).—Applying Schreinemakers' method of residues to cotton cellulose and to ramie cellulose steeped in aqueous sodium thiosulphate or aqueous pyridine solution showed the formation of $2C_6H_{10}O_5.H_2O$; when applied to cellulose that had been mercerized with caustic soda of more than 150 g. per l. or with cuprammonium solution, the existence of $C_6H_{10}O_5.H_2O$ was shown. Applying the method to cellulose steeped in caustic soda solution confirmed the existence of the compounds $2C_6H_{10}O_5.NaOH$ (In solutions containing 140 to 190 g. caustic soda per l.) and $C_6H_{10}O_5.NaOH$ (in solutions containing over 550 g. caustic soda per l.), and indicated the existence of $3C_6H_{10}O_5.2NaOH$ and of $4C_6H_{10}O_5.3NaOH$.—A. P.-C.

**Structure of Cellulosic Compounds. New Results Obtained By X-rays and the Diffraction of Electrons.** J. J. Trillat. Chimie et Industrie Special No.; 175-185 (April, 1934).—A review of recent work done on the use of x-rays and of diffraction of electrons in the study of the structure of cellulose and its derivatives.—A. P.-C.

**Viscosity and Molecular Weight of Cellulose Solutions.** H. Mark. Chimie & Industrie Special No. 788-791 (April, 1934).—A critical review and discussion of work published since 1930.—A. P.-C.

**The Chemistry of Pulp for the Year 1933.** D. Kruger. Zellstoff u. Papier 14, No. 3: 89-92 (March, 1934).—Among the topics discussed are, the structure and molecular weight of cellulose, uniformity of cellulose materials and methods of reaction of cellulose materials, pulp and salt solutions, hemi-cellulose, the constitution of lignin, various lignin preparations and lignin sulphonic acid. An extensive bibliography accompanies the article.—J. F. O.

**The Fine Structure of the Wood Fiber.** D. Kruger. Zellstoff u. Papier 13, No. 8: 373-76 (August, 1933).—The author writes of the theories of several investigators regarding the cellulose molecule. The fiber is studied by means of the microscope, rontgen waves, and the direct polarisation microscope. Cellulose is known to be crystalline and to be composed of a chain with many glucose groups attached, some figure between a hundred and a thousand. Lignin though is amorphous and hence cannot be studied with polarisation microscope and rontgen waves. Drawings and micro-photographs accompany the article.—J. F. O.



**Grinding Machine.** Louis C. Park. U. S. pat. 1,961,862 (June 5, 1934).—A machine for grinding waste material suitable for making insulating board, etc., comprises a feeding screw rotatably mounted in a vertical feed tube to deliver the material to the grinding element consisting of stationary and rotating, frustro-conical grinding surfaces; the rotating cone is divided into three zones formed of abrading material of increasing fineness of grain from the top to the bottom. Water is delivered through passages formed in the rotating cone. Means are provided for automatically disconnecting the feeding screw from the driving means when an excessive amount of material is being fed to the machine.—A. P.-C.

**Manufacture of Groundwood Pulp and Grinding Stone Therefor.** Francis S. Farley. U. S. pat. 1,975,452 (Oct. 2, 1934).—Two series of holes are provided extending from each face of the stone diagonally at an angle of about 15° nearly but not quite to the other face. Water is fed to these holes and diffuses outward to the circular face of the stone by the action of centrifugal force, thus preventing excessive heating.—A. P.-C.

**Treating Wood Preliminary to Grinding.** Lemuel B. Decker, U. S. pat. 1,975,255 (Oct. 2, 1934).—Wood blocks are softened by heating with a suitable liquor; when treatment is completed the liquor is transferred to a second tank filled with wood blocks in order to preheat them, after which the liquor is removed, the tank is filled with fresh treating liquor and impregnation completed as before.—A. P.-C.

**Sap Peeled Versus Drum Barked Wood for the Manufacture of Mechanical Pulp.** H. B. McAdam. Pulp Paper Can. 35: 470-471 (Aug., 1934).—From a general discussion of the problem from a paper maker's standpoint, it is concluded that newsprint made of dry wood is not up to its optimum quality, that paper machines and printing presses do not run at as high an efficiency on dry wood as on green wood, and that slime and rot have more ideal growing conditions in dry wood than with drum barked wood.—A. P.-C.

**Recent Trends in Groundwood Manufacture.** H. Wyatt Johnston. Paper Trade J. 99, No. 6: 35-36 (Aug. 9, 1934).—A brief discussion of present day trends as regards natural versus artificial pulp stones, pocket versus continuous grinders and possibilities of grinding at high stone-surface speeds.—A. P.-C.

**Grinding of Extracted Chips on Rolls for the Production of Fiber By Crushing.** A. S. Furman. Leningrad. Oblastnoi Sovet Nauch. Inzhenerno-Tekh. Obshchestva Tzellyulozno-Bumazhnoi Prom. (Leningrad Dist. Sci. Eng.-Tech. Soc. Cellulose Paper Ind.), Problems of Rationalization of Cellulose-Paper Production 1934:56-67; C. A. 28:6302.—Preliminary laboratory experiments in crushing of extracted aspen chips on rolls produced a halfstuff in quality to that obtained by grinding on runners and a rod mill. By further reworking on a Lampen mill paper with high technical properties was obtained.—C. J. W.

**Low Consistency Hot Wood Grinding Process.** A. A. Malinowsky. Zellstoff u. Papier 14, No. 6: 241 (June, 1934).—By having the consistency in the trough below the grind stone at about 2 per cent, a better grade of ground wood was produced at the Balachna mill in Russia, as shown by the tests on the resulting product.—J. F. O.

**The Sharpening of Pulp Stones and Its Influence on the Quality of the Stock.** A. A. Chlebnikoff. Zellstoff u. Papier 14, No. 6: 243-244 (June, 1934).—The most important factor in the sharpening of the pulp stone is the pressure of the burr on the stone. The sharpening

should be of such a nature that it is rougher than the structure of the stone. The experiments were carried out on an artificial stone.—J. F. O.

**The Influence of the Method of Stone Sharpening on the Quality of the Ground Wood and the Production of the Pulp Stone.** A. A. Sterlingoff. Zellstoff u. Papier 14, No. 6: 244-245 (June, 1934).—The production and quality of the ground wood resulting from the use of different burrs for sharpening the stone are tabulated. A spiral burr with a 2 inch lead gave a superior ground wood to that when using a 1¼ inch lead, besides an increase in production of about 15 per cent.—J. F. O.

**Arrangement for the Automatic Regulation of Wood Grinders with Several Presses.** Akt. Ges. Brown Boveri & Cie, Baden, Switzerland. Aust. pat. 132,646 (Nov. 15, 1932).—J. F. O.

### Alkaline Processes

**Production of Halfstuffs from Wood By the Sudakov Method.** N. I. Trukhov. Tzentral Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 1:142-73; C. A. 28:6303.—The Sudakov process was applied to the production of halfstuff from aspen chips and birch shavings by macerating at different temperatures with 3-12 parts of sodium hydroxide or 30 percent. calcium hydroxide, either before or during the process of grinding in a rod mill or edge-runner. Optimum conditions of maceration with 90 percent. yield were for birch 8-9 hours at 15-20° with 1.5-2 percent. sodium hydroxide and for aspen 12-15 hours at 15-20° with 2-2.5 percent. sodium hydroxide. With decreasing thickness of chips the standard time was reduced and this necessitated a careful removal of large pieces and sawdust. The saturation was greatly accelerated by pressure but the process seemed too complicated, requiring further experimentation. Maceration with mechanical stirring produced the best results, while circulation of liquor had no effect on aspen chips but accelerated the saturation of shavings. The method of simultaneous saturation with sodium hydroxide and grinding produced better results with a rod mill than with edge-runners. The substitution of calcium hydroxide was practicable with preliminary maceration and subsequent grinding or with direct addition of calcium hydroxide to the wood in the runners. Bleaching of Sudakov halfstuff with calcium acid sulphite produced unsatisfactory results. The product resembled mechanical pulp and could be used in mixtures only for production of yellowish paper.—C. J. W.

**Production of Halfstuff from Straw Without Pressure by Maceration.** M. P. Resh, L. Skul'skaya and A. Rubekina-Goer. Tzentral Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 2:157-170; C. A. 28:6303.—A high grade of pulp, suitable for production of wrapping paper and carton of the semi-kraft type, was obtained from rye straw by macerating 2-3 hours at 80° with 10-17 percent. (based on absolutely dry straw) of mixtures of sodium hydroxide and sodium sulphide in porportions of 2:1, 3:1 and 4:1 or with causticized (calcium hydroxide treated) sulphate-sulphite recovered liquor melt.—C. J. W.

**Production of Straw Cellulose.** M. P. Resh and A. P. Petrov. Tzentral Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 2:171-178; C. A. 28:6304.—A good grade of wrapping paper was obtained by pulping straw 4-5 hours at 4-5 atmospheres pressure with mixtures of sodium sulphite and sodium bicarbonate (55 percent yield), sodium sulphite and sodium carbonate (65 percent. pulp), sodium sulphite, sodium carbonate and sodium sulphide (60 percent. pulp), sodium hydroxide, sodium carbonate and sodium sulphide (60 percent. pulp). "Alpha-sulphite" (from phenol production), containing 65 percent. sodium sulphite, was successfully substituted for commercial sodium sulphite.—C. J. W.

**Economics of Production of Straw Halfstuff by Maceration without Pressure and by Cooking at Low Pressure.** V. Chuistov. Tzentral Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 2:179-194; C. A. 28:6304.—Economic advantages of utilizing waste straw for the production of better grades of commercial papers by the two processes given above are discussed. The method of maceration is considered more economical, because it gives a somewhat better yield, requires simpler equipment, etc.—C. J. W.

**Two-Stage Method of Production of Halfstuff and Cellulose from Straw.** P. S. Larin. Tzentral Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 1:43-59; C. A. 28:6304.—A study was made of the influence of temperature on the yield and properties of halfstuffs and the resulting pulp by the process of macerating shredded straw with 7 parts of 2.5 percent. sodium hydroxide 12 hours at 20°, 4 hours at 40°, 2.5 hours at 60° and 0.5-1 hour at 80° and then steaming the halfstuff 40 minutes at 160-175°. The yield of halfstuff is decreased with increasing temperature of maceration from 73.3 percent. at 20° to 66.2 percent. at 80°. The temperature of maceration has no effect on the yield of pulp. The ash content of the pulp rises with the increasing temperature (and decreasing time) of maceration up to 60° and decreases at 80°. The lignin content is decreased with the increasing temperature of maceration. The mechanical properties of the pulp and paper obtained by maceration at different temperatures but cooked under equal conditions, are very similar and are considerably higher than those of bleached sulphite and alkali products. The optimum conditions for large-scale production are macerating 4.5 hours at 40° and 2.5 hours at 60° and cooking 40 minutes at 160-175°. The amount of recovered liquor is only slightly reduced with the rising temperature of maceration from 44.5 g./l. at 20° to 70.1 g./l. at 80°. The cost of production is reduced by using the recovered spent liquors for subsequent macerations with the addition of sodium hydroxide to 2.5 percent. alkalinity. The concentration of organic matter in the recovered liquors increases with repeated use to a definite limit and then becomes constant. The increase of organic matter in the liquor has no effect on the yield of halfstuff or on the pulp. The consumption of chlorine, mechanical properties and color of paper are constant for all products obtained under equal conditions of maceration and cooking.—C. J. W.

**Use of Flax Chaff and Straw in Paper Production.** M. Ya. Robinov. Tzentral Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 2:130-157; C. A. 28:6304.—By sulphate cooking of flax chaff 6 hours at 6 atmospheres pressure with 17.5 percent. active alkalinity, 36-41.65 percent. pulp was obtained, including 4 percent. of linen pulp (rag halfstuff) and 33.3 percent. of bleached pulp with 4.8-5.2 percent. chlorine consumption. Mixed with wood pulp in various proportions, it gave writing and commercial grades of paper of good quality and mechanical properties equal to those obtained from cereal straw pulp. Other methods of pulping gave negative results. Pulping of refuse flax straw produced inconclusive results.—C. J. W.

**Production of Pulp from Cotton Stems.** V. V. Yakimanskii. Materialui Vsesoyuz Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 4:21-39; C. A. 28:5661.—Shredded cotton stems cooked 10-13 hours at 7-9 atmospheres pressure with sodium hydroxide plus sodium sulphide in concentrations of 80-100 grams per liter (calculated as sodium hydroxide) or 20-25 percent. sodium hydroxide of the weight of cotton stem stock, produced 34.6 percent. of pulp or 31 percent. of bleached pulp. An imput of 6.5 percent. chlorine is required for production of half-bleached stock and 8 percent. for bleached paper. The stock is highly contaminated with dust, sand and other foreign matter (mostly bark), for the removal of which the dusting rag drums can be used. The common straw shredders of heavier construction and exhausters for pneumatic feeding can be used for cotton stems. There is a considerable resemblance between the fibers of cotton stem and straw pulps, which give some good results in mixtures with long-fiber pulp, such as wood pulp. An admixture of 25 percent. of cotton stem pulp to wood pulp results in paper with greatly improved mechanical strength. —C. J. W.

**Sulphate Pulping of Spruce and Pine Waste at High Temperature.** P. Zotov. Tzentral Nauch-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Central Sci. Research Inst. Paper Ind. Trans.) 1933, No. 4: 124-141; C. A. 28:6564.—By sulphate cooking at 183° with a minimum of 25 percent. alkali on the weight of wood the pulping time was reduced to 5 minutes with 48 percent. yield. The mechanical properties of the pulps are equal to those obtained by normal cooking. Spruce under similar conditions of cooking gives a greater yield of a more thoroughly cooked pulp with a smaller consumption of alkalies than pine. Mechanical properties of spruce pulp are higher than those of pine. The resulting pulps are suited for making kraft and wrapping papers.—C. J. W.

### Miscellaneous

**Rate of Formation of the Crystalline Structure of Wood Fibers.** George J. Ritter and Charles W. Stillwell. Paper Trade J. 98, No. 22:37-40 (May 31, 1934).—The rate of formation of the crystalline structure of the mature wood fiber was followed through x-ray diffraction patterns of specimens of known age sampled microscopically.—A.P.-C.

**Structure of the Cell Wall of Wood Fibers.** George J. Ritter. Paper Ind. 16:178-183 (June, 1934).—A profusely illustrated review with bibliography of 25 references.—A.P.-C.

**Pulp and Paper Mill Pollutional Studies.** L. F. Warrick and J. M. Holderby. Paper Trade J. 98, No. 19:33-35 (May 10, 1934).—A general report on studies of pulp and paper mill wastes made during 1933 by the Bureau of Sanitary Engineering, Wisconsin State Board of Health, in co-operation with the Wisconsin pulp and paper industry, showing that definite and encouraging progress is being made by the Wisconsin pulp and paper mills in reducing sewer loss and decreasing stream pollution.—A.P.-C.

**Development and Use of Quality Standards.** Lyman J. Briggs. Paper Trade J. 98, No. 16:38-39 (April 19, 1934).—A.P.-C.

**Standardization from Consumer's Viewpoint.** N. H. Stuart. Paper Trade J. 98, No. 16:31-42 (April 19, 1934).—A.P.-C.

**Paper Standardization from the Converter's Viewpoint.** N. H. Stuart. Paper Trade J. 98, No. 17:48-50 (April 26, 1934).—A.P.-C.

**Standardization and the Paper Merchant.** Charles Addoms. Paper Trade J. 98, No. 17:51-52 (April 26, 1934).—A.P.-C.

**TAPPI Facilities for Developing Standards.** Clark C. Heritage. Paper Trade J. 98, No. 17:51-52 (April 26, 1934).—A.P.-C.

**New White Water System.** Industria carta 1, No. 5:200-201 (May, 1934).—A system for the recovery of fibers from white water by A. Karlstrom is described. The white water is mixed with air, and introduced into a tank in an upwardly directed current. The fibers are lifted to the surface by adhering gas bubbles and can be readily separated.—C. J. W.

**Standardization in the Paper Industry.** Charles W. Boyce. Paper Trade J. 98, No. 16:31-32 (April 19, 1934). —A.P.-C.

**Paper Standards and the Importer.** Warren B. Bullock. Paper Trade J. 98, No. 16:32 (April 19, 1934).—A.P.-C.

**Work of the Writing Paper Association Grading Committee.** Maxamillian Krimmel. Paper Trade J. 98, No. 16:33-34 (April 19, 1934).—A brief review of its origin, purpose, activities, accomplishments and plans for the future.—A.P.-C.

**Specifications and the Paper Manufacturer.** Ernst Mahler. Paper Trade J. 98, No. 16:34 (April 19, 1934). —A.P.-C.

**The Paper Grading Problem of the Book Paper Industry.** H. P. Carruth. Paper Trade J. 98, No. 16:34-35 (April 19, 1934).—A.P.-C.

**Paper Standards from the Point of View of the Institute of Paper Chemistry.** Henry P. Wriston. Paper Trade J. 98, No. 16:36-37 (April 19, 1934).—A.P.-C.

**United States Patents on Paper Making.** First Quarter, 1934. Clarence J. West. Paper Trade J. 98, No. 18:37-40 (May 3, 1934).—A list in numerical sequence of patents relating to pulp and paper making issued at Washington in Jan., Feb. and March, 1934.—A.P.-C.

**Pulp and Paper Operating Developments in 1933.** Frederic C. Clark. Paper Trade J. 98, No. 16:39-40 (April 19, 1934).—A review with bibliography of 25 references.—A.P.-C.

**The Paper Mill Superintendent.** A. W. Wickham. Paper Trade J. 98, No. 26:73-74 (June 28, 1934).—A brief discussion of the superintendent of yesterday, of today and of tomorrow.—A.P.-C.

**Controlled Production.** Arthur C. Smith. Paper Trade J. 99, No. 2:38-40 (July 12, 1934).—A presentation of the basic principles and operation of a system of production control.—A.P.-C.

**Proper Co-operation and Paper Mill Supervision.** E. C. Gildenzopf. Paper Trade J. 99, No. 2:33 (July 12, 1934).—A brief discussion.—A.P.-C.

**The Paper Industry Trend Towards Standardization of Product and Its Relationship to the Superintendent.** Frederic C. Clark. Paper Trade J. 99, No. 1:38-40 (July 5, 1934).—A.P.-C.

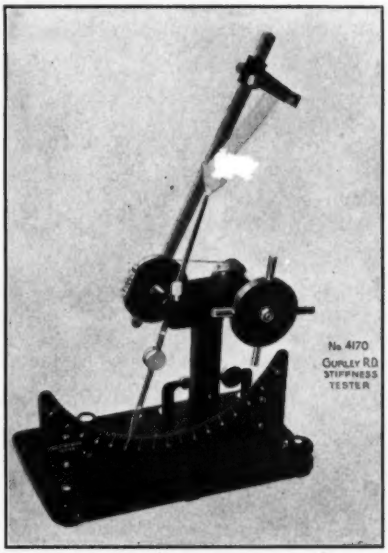
**Notes Regarding Nomographs.** Henry I. Morton. Paper Trade J. 98, No. 21:31-35 (May 24, 1934).—After a brief historical outline of the development of the use of nomographs, the parallel and the N or Z types are discussed to show their advantages and uses in industry, giving several examples to bring out these points.—A.P.-C.

## The Gurley R. D. Stiffness Tester

This instrument was developed in the laboratory of one of the largest paper manufacturers, and is the result of thorough test and experiment. It will measure the stiffness, softness, pliability, or "feel" of practically all kinds of paper in which these are a factor. It can be used on light tissue paper, cigarette paper, bonds, news, hanging, bristol, tabulating, bottle, and other papers. All readings are expressed in milligrams.

The stiffness of the paper is measured by clamping a prepared sample in a movable arm, and dragging the paper over the top of a weighted pointer, until the bending of the paper releases the pointed. The amount of deflection of the pointer, read on a scale at the bottom end, is the measure of stiffness.

The clamp holding the sample can be raised or lowered




GURLEY R. D. STIFFNESS TESTER

on the arm, permitting the use of samples from 1-inch to 4½-inch lengths. The width may be from ½-inch to 2 inches.

The pointer can be loaded with weights of 5 grams, 25 grams, or 50 grams, placed at any one of three distances below the center.

The clamp arm is rotated by a wire belt running from a capstan handle, which is turned by the person conducting the test.

A double sine scale is mounted on the base. Leveling screws and a circular spirit level are provided.

The base is leveled, and the pointer will hang at zero on the scale.

The sample is then prepared. The sample must be cut accurately, as a "feathered" edge will cause a false reading.

A suitable size of sample and value of loading weight may be selected which will give a satisfactory scale reading.

The clamp arm is then rotated, and the paper forces the pointer out of vertical, until the end clears or is about to clear the vane. This is the maximum scale reading, and should be recorded. The test is completed when the end of the sample clears the vane. The reading in the other direction should then be taken.

Readings should be taken both with, and against, any curl on the one sample, i. e., on the right and left halves of the scale, and the readings averaged.

Five samples should be tested to obtain an average. It is important that the samples should be humidified to some standard condition.

The Gurley R. D. Stiffness Tester is constructed very accurately. The weights are adjusted to fine tolerance; the locating holes for the weights and the paper clamp are precisely spaced; the scale is engine-divided, and mechanical errors are negligible. The pivot bearing for the pointer arm is jeweled, and is practically frictionless. The instrument is made of bronze, aluminum, and stainless steel, finished in black, with chromium-plated small parts. Height: 17 inches. Size of base: 6 inches x 10½ inches. Weight: 13 lbs. Shipping Weight: 35 lbs.

## Bristol's New Metameter for Telemetering

The latest development in telemetering by The Bristol Company, Waterbury, Conn., the Metameter, makes it possible to control temperatures, pressures, levels, and other process conditions or operations at any distant place a few feet or several thousand miles away.

It consists of a transmitter, at the location where the temperature or pressure is being measured, an electrical circuit for conveying the impulses automatically sent out by this transmitter, and a receiving instrument at headquarters for mechanically translating the impulses received into the measurements made. The 12 inch chart keeps a continuous record of every fluctuation at the distant point. Any change from normal, whether alarmingly abrupt and large or minute and gradual, is immediately and permanently recorded.

The durations and not the intensities of the transmitted impulses are proportional to the values measured. Only a simple two-wire circuit is needed. Where available any existing telephone line may be employed without danger of interference with, or from, conversation carried, line inductance or capacity.

In addition to the large easy-to-read chart, the Metameter has been perfected so that any kind and frequency of line current may be used. Both line current and voltage are small. They are free from interference by changes in voltage or other line conditions. There are no exposed contacts. Power consumption is small. Synchronous power sources are unnecessary. Bristol's standard measuring elements are used. The equipment is self-checking and self-restoring, and is applicable to remote control.

## Cardboard Budget and Basis of Contribution

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 19, 1934—The Executive Authority for the cardboard division of the paper and pulp industry has made application to the National Industrial Recovery Board for approval of its budget for code administration, and the proposed basis of contribution to the same by members of the industry.

The total amount of the budget for the period from February 1, 1934 to January 31, 1935 is $11,324.75. The basis of the contribution is as follows:

Assessments pro-rated on the basis of net sales (1933); approved rate of assessment 2/10 of one per cent of net 1933 sales; since this would provide funds amounting to $11,270.34, based on reported sales of $5,635,167.51 and the approved estimated expenditures amount to $11,324.75 the treasurer is authorized to levy additional assessment, if necessary, to provide $54.43 to balance the budget.

## TAPPI Mechanical Pulping Committee

EDITOR PAPER TRADE JOURNAL:

At the Annual Meeting of TAPPI in February, the Mechanical Pulping Committee are planning to hold an open forum meeting for the discussion of the production of mechanical pulps. The preliminary work in preparation for this meeting is to collect as much information as can be secured from mills producing and using mechanical pulps and also from those builders of equipment which are used to produce ground wood pulp. This equipment work includes besides the grinders themselves, the screens, refiners, etc., and such other auxiliary equipment and instruments as are commonly used.

While a number of letters have been written to both the mills and to the equipment builders it would seem desirable to give a certain amount of publicity to this work as there may be some who would be glad to cooperate with us if they knew what we were trying to do.

It is the feeling of the Mechanical Pulping Committee that some useful work might be done which would be of considerable value to the Industry and that both mills and equipment builders can contribute a great deal to the success of the promotion of this work.

The information collected from both mills and equipment builders is to be tabulated, of course leaving out the names so far as possible and particularly asking the Industry of any particular phases of its work which they feel is incomplete or unsatisfactory and where some of the development organizations such as the Forest Products Laboratories at Madison and at Montreal could contribute advantageously making special tests or experiments.

As you know considerable work has already been done at Montreal. Also equipment is now being installed at Madison for a more thorough study of the mechanical pulp preparation than has heretofore been possible. If we can succeed in tying in the commercial data with the experimental information we can then perhaps have a considerably better idea as to what our problems are than we have at the moment.

I will greatly appreciate your cooperation and suggestions.

Very truly yours,
Mechanical Pulping Committee
M. P. CHAPLIN, *Chairman*

P. O. Box 234, Waterville, Maine.

## TAPPI Groundwood Program

The Mechanical Pulping Committee of the Technical Association of the Pulp and Paper Industry has announced its annual meeting program to be held at the Waldorf-Astoria Hotel, New York on February 18 to 21, 1935. M. P. Chaplin, vice president and chief engineer of the Keyes Fibre Company, Waterville, Maine, is chairman of the committee.

Bernard Bornstein, technical advisor of the Grindstone Division of the Norton Company, Worcester, Massachusetts, will talk on "Some Developments in European Groundwood Mill Practice." Mr. Bornstein has recently visited the various mills in Europe using the mechanical pulping processes.

W. E. Brawn, assistant general superintendent of the Pejepscot Paper Company, Brunswick, Maine, will report on "The Developments in Groundwood Mill Operation in America." Mr. Brawn as vice chairman of the committee has been keeping in touch with improvements in the industry.

H. Wyatt Johnston, chief of the Pulp and Paper Division of the Forest Products Laboratories of Canada, Montreal, will discuss "The Experimental Mechanical Pulp Production at the Research Institute." Dr. Johnston will report on the work being done on high speed grinding and other procedures.

C. E. Curran, chief of the Pulp and Paper Division of the United States Forest Products Laboratory, Madison, Wisconsin, will discuss "A Program of Groundwood Research." The Forest Products Laboratory has recently moved into its new, well equipped and commodious quarters at Madison, and will soon launch a program of outstanding merit which should do much to add to the knowledge of the fundamentals of mechanical pulp manufacture.

Anyone interested in groundwood manufacture is invited to attend this meeting, and anyone wishing to present a paper should notify R. G. Macdonald, 122 East 42nd Street, New York, without delay.

## Important Advancements and Additions Mark Reading Iron Company's New Year

Important promotions within its ranks, as well as additions to its sales force, mark the beginning of the new year for the Reading Iron Company, America's oldest and largest manufacturers of genuine puddled wrought iron.

C. T. Ressler, formerly manager of Railroad and Marine Sales, is appointed specification engineer, Sales Division. His headquarters will be at 401 North Broad Street, Philadelphia.

R. I. Fretz, formerly district sales representative, with headquarters in Columbus, Ohio, is appointed Manager of Eastern Railroad and Marine Sales, with headquarters at 401 North Broad Street, Philadelphia.

C. W. Guthrie, formerly salesman in the New York District, with headquarters in New York City, is appointed district sales representative for the Columbus territory. His headquarters will be announced at a later date.

Bryant Myers joins the Company's Pacific Coast sales force. His headquarters will be at 213 Shelden Building, San Francisco, and he will work under the supervision of J. K. Aimer, manager of sales, Pacific Coast Region, whose headquarters are at Los Angeles.

E. S. Morrow is added to the oil country sales force. He will work under the supervision of N. R. Putnam, District Sales Representative, whose headquarters are at Tulsa, Okla.

F. B. Olcott is appointed Special Representative for the purpose of handling Government business. His headquarters are at 220 Mills Building, Washington, D. C.

## Changes in Paper Division of NRA

WASHINGTON, D. C., December 19, 1934—A number of changes have been made in the NRA paper division since W. J. Brown has been made Deputy Administrator in charge in place of Lieutenant Tulley who resigned sometime ago.

F. C. Lowthorp, O. A. Gottschalk, G. A. Prohaska, and J. C. Sappington, who were working in various capacities in the Paper Division have been transferred to the New York office of NRA.

A. L. Bobrick and George Hammill, have joined the Paper Division as Assistant Deputy Administrators. Mr. Bobrick was in charge of the western division of the National Paper Products Company, with headquarters at San Francisco from 1916-1921 and was president of the Sanitary Products Company, New York City, from 1920-1928. Recently he has not been connected with the paper industry. Mr. Hammill has been working with the NRA Research and Planning Division for some time.

# IMPORTS OF PAPER AND PAPER STOCK

## NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

### NEW YORK IMPORTS

WEEK ENDING DECEMBER 15, 1934

CIGARETTE PAPER

Standard Products Corp., Paris, Havre, 50 cs.; De Manduit Paper Corp., Washington, Havre, 151 cs.; Champagne Paper Corp., Washington, Havre, 528 cs.

WALL PAPER

F. J. Emmerich, Britannic, Liverpool, 10 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Banker, London, 8 cs., 1 cs.

WALL BOARD

Treetex Corp., Sagoporack, Horneborg, 3905 bls.

NEWS PRINT

Perkins Goodwin & Co., Pr. Roosevelt, Hamburg, 154 rolls; Jay Madden Corp., Blankaholm, Kotka, 730 rolls; Gilman Paper Co., Blankaholm, Kotka, 219 rolls; Lunham & Reeve, Inc., Blankaholm, Kotha, 146 rolls; Gilman Paper Co., Blankaholm, Norrkoeping, 219 rolls; Brooklyn Times, Blankaholm, Norrkoeping, 314 rolls; American Newspapers, Inc., Markland, Liverpool, N. S., 962 rolls; N. Y. Tribune, Markland, Liverpool, N. S., 1547 rolls; World Telegram, Markland, Liverpool, N. S., 1153 rolls; Brooklyn Daily Eagle, Markland, Liverpool, N. S., 1120 rolls; Bridgeport Herald, Markland, Liverpool, N. S., 125 rolls; South Norwalk Sentinel, Markland, Liverpool, N. S., 65 rolls; Gilman Paper Co., Markland, Liverpool, N. S., 1672 rolls; Perkins Goodwin & Co., Washington, Hamburg, 140 rolls; Jay Madden Corp., Washington, Hamburg, 134 rolls; Jay Madden Corp., Sagoporack, Helsingfors, 504 rolls.

PRINTING PAPER

Senefelder, Inc., Washington, Hamburg, 17 cs.; F. C. Strype, Leerdam, Rotterdam, 18 cs.

WRAPPING PAPER

Wilkinson Grey & Co., Blankaholm, Gothenburg, 29 cs.; Walker Sirnces, Inc., Britannic, Liverpool, 2 cs.

PACKING PAPER

Irving Trust Co., Pr. Roosevelt, Hamburg, 10 cs.; Scharf Bros. Inc., Leerdam, Rotterdam, 4 cs.

KRAFT PAPER

Walker Goulard Plehn Co., Pr. Roosevelt, Hamburg, 30 rolls.

FILTER PAPER

J. Manheimer, Majestic, Southampton, 96 bls., 1 cs.; H. Reeve Angel & Co. Inc., American Banker, London, 5 cs.; A. Giese & Son, Leerdam, Rotterdam, 25 bls.

DRAWING PAPER

H. Reeve Angel & Co. Inc., American Banker, London, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Westernland, Antwerp, 56 cs.

COLORED PAPER

Borden Riley Paper Co., Westernland, Antwerp, 7 cs.

DECALCOMANIAS

L. A. Consmiller, Bremen, Bremen, 11 cs.; Sellers Transportation Co., Bremen, Bremen, 4 cs.; Sellers Transportation Co., Pr. Roosevelt, Hamburg, 5 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 29 cs. (duplex).

TRANSFER PICTURES

Rohner Gehrig & Co., Bremen, Bremen, 24 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 5 cs.; W. J. Byrnes, Majestic, Southampton, 1 cs.

PASTE BOARD

J. P. Heffernan Paper Co., Westernland, Antwerp, 19 cs.

GUMMED PAPER

E. B. Baehr & Sons, Pr. Roosevelt, Havre, 2 cs.

STENCIL PAPER

Frankel Carbon & Ribbon Mang Co., American Banker, London, 3 cs.

MISCELLANEOUS PAPER

Keuffel & Esser Co., Pr. Roosevelt, Hamburg, 54 cs., 18 rolls; E. H. Sargent & Co., Blankaholm, Gothenburg, 1 cs.; Japan Paper Co., G. Maersk, Kobe, 9 cs.; Corn Exchange Bank Trust Co., Hokkai Maru, Osaka, 6 cs.; National City Bank, Hokkai Maru, Yokohama, 9 cs.

RAGS, BAGGINGS, ETC.

J. Flannery, Collamer, Havre, 198 bls. rags; J. Flannery, Collamer, Havre, 109 bls. bagging; ——, Nordkap, Genoa, 68 bls. cotton waste; C. H. Powell & Co., Leerdam, Rotterdam, 122 bls. cotton waste; N. Schwab & Son, Leerdam, Rotterdam, 25 bls. cotton waste; ——, Excambion, Alexandria, 79 bls. rags.

OLD ROPE

Banco Coml Italiane Trust Co., Isarco, Genoa, 165 coils.

CHINA CLAY

Whitaker Clark & Daniels, Britannic, Liverpool, 585 bags, 49 tons.

### Wood Pulp

M. Sone, Pr. Roosevelt, Hamburg, 651 bls. wood pulp, 103 tons; Perkins Goodwin & Co., Blankaholm, Gothenburg, 508 bls. sulphate; Price & Pierce, Ltd., Blankaholm, Gothenburg, 125 bls. sulphite; Gottesman & Co. Inc., Blankaholm, Gothenburg, 2100 bls. sulphate; M. Sone, Washington, Hamburg, 225 bls. wood pulp, 45 tons; E. J. Keller Co. Inc., Sagoporack, ——, 312 bls. wood pulp, 47 tons; Pagel Horton & Co. Inc., Sagoporack, Sikea, 1800 bls. sulphite, 304 tons; Price & Pierce, Ltd., Sagoporack, Orviken, 840 bls. chemical pulp, 142 tons.

### Wood Pulp Boards

Flexideal, Pr. Roosevelt, Hamburg, 30 bls.; Johaneson Wales & Sparre, Inc., Blankaholm, Viipuri, 205 rolls.

## ALBANY IMPORTS

Week Ending December 15, 1934

Atterbury Bros. Inc., Blankaholm, Wiborg, 162 bls. sulphate; Castle & Overton, Inc. Blankaholm, Wiborg, 2833 bls. wood pulp; Lagerloef Trading Co., Blankaholm, Wiborg, 3060 bls. sulphite; Lagerloef Trading Co., Blankaholm, Kotka, 644 bls. sulphite; Perkins Goodwin & Co., Blankaholm, Gothenburg, 5080 bls. kraft pulp; Bank of Manhattan Trust Co., Blankaholm, Gothenburg, 701 bls. sulphite; Perkins Goodwin & Co., Belos, Sundsvall, 4500 bls. sulphite, 750 tons; Pagel Horton & Co. Inc., Belos, Domsjo, 4278 bls. sulphite, 700 tons; ——, Belos, Hernosand, 3000 bls. sulphite, 500 tons; Price & Pierce, Ltd., Belos, Hernosand, 1350 bls. sulphite, 228 tons; Pagel Horton & Co. Inc., Belos, Gefle, 2760 bls. sulphite, 500 tons; Bulkley Dunton & Co., Belos, ——, 6000 bls. sulphite, 1000 tons.

## PORTLAND IMPORTS

Week Ending December 15, 1934

Bulkley Dunton & Co., Simon von Utrecht, ——, 4200 bls. wood pulp; Gottesman & Co. Inc., Ragnhildsholm, ——, Sweden, 3000 bls. wood pulp.

## BOSTON IMPORTS

Week Ending December 15, 1934

D. C. Andrews & Co., Britannic, Liverpool, 12 bls. bowl paper; G. F. Malcolm Inc., Britannic, Liverpool, 44 cs. tissue paper; Stora Kopparberg Corp., Belos, Skutskar, 2460 bls. wood pulp, 499 tons; M. Sone, Trolleholm, Helsingfors, 600 bls. wood pulp; Gottesman & Co. Inc., Ragnhildsholm, Sweden, 1000 bls. wood pulp; Parsons & Whittemore, Inc., Frankenwald, ——, 625 bls. wood pulp; Parsons & Whittemore, Inc., Augsburg, ——, 250 bls. wood pulp.

## PHILADELPHIA IMPORTS

Week Ending December 15, 1934

F. Weber & Co., Isarco, Genoa, 15 cs. paper; Castle & Overton, Inc., Collamer, Havre, 49 bls. rags; E. J. Keller Co. Inc., Collamer, ——, 224 bls. rags; Castle & Overton, Inc., Collamer, Dunkirk, 201 bls. rags; Price & Pierce, Ltd., Carplaka, Wallvik, 300 bls. sulphite, 50 tons; Price & Pierce, Ltd., Carplaka, Wallvik, 250 bls. mechanical pulp, 50 tons; Stora Kopparberg Corp., Carplaka, Gefle, 91 rolls newsprint; Johaneson Wales & Sparre, Inc., Sagoporack, Gdynia, 205 bls. wood pulp, 30 tons; Pagel Horton & Co., Inc., Sagoporack, Husum, 270 bls. sulphite, 45 tons; Pagel Horton & Co., Inc., Sagoporack, Husum, 6160 bls. sulphate, 1000 tons; Pagel Horton & Co. Inc., Sagoporack, Sikea, 150 bls. sulphite, 25 tons; Price & Pierce, Ltd., Sagoporack, Orviken, 3800 lbs. chemical pulp, 558 tons; E. W. Twitchell Inc., Sagoporack, Helsingfors, 140 rolls kraft paper; J. M. Hagy Waste Works, G. Maersk, Kobe, 195 bls. rags; Corn Exchange Bank Trust Co., G. Maersk, Kobe, 50 bls. rags; E. J. Keller Co. Inc., G. Maersk, ——, 450 bls. rags; Gottesman & Co. Inc., Braheholm, Sweden, 1350 bls. wood pulp; Gottesman & Co. Inc., Ragnhildsholm, Sweden, 1609 bls. wood pulp.

## WILMINGTON IMPORTS

Week Ending December 15, 1934

J. Andersen & Co., Sagoporack, Gdynia, 800 bls. sulphite, 158 tons; Perkins Goodwin & Co., Sagoporack, Gdynia, 2199 bls. sulphite, 340 tons; Price & Pierce, Ltd., Sagoporack, Orviken, 9600 bls. chemical pulp, 1600 tons.

## BALTIMORE IMPORTS

Week Ending December 15, 1934

M. Sone, C. of Baltimore, Hamburg, 1050 bls. wood pulp; Gottesman & Co. Inc., Braheholm, Sweden, 2850 bls. wood pulp; Parsons & Whittemore, Inc., C. of Hamburg, ——, 125 bls. wood pulp; Parsons & Whittemore, Inc., C. of Newport News, ——, 125 bls. wood pulp.

## SAVANNAH IMPORTS

Week Ending December 15, 1934

New England Waste Co., G. Maersk, Kobe, 500 bls. bagging.

## NEW ORLEANS IMPORTS

Week Ending December 15, 1934

Parsons & Whittemore, Inc., Meanticut, ——, 300 bls. wood pulp; Parsons & Whittemore, Inc., Stureholm, ——, 886 bls. wood pulp; Gottesman & Co. Inc., Korsholm, Sweden, 500 bls. wood pulp; Gottesman & Co. Inc., Korsholm, Finland, 600 bls. wood pulp.

---

## German Paper Industry Under Control

The German paper industry was placed under Governmental control by a decree of September 7, according to a report from W. S. Jesien, Office of American Consulate General, Frankfort-on-Main. The control established was the same as that already in effect in various other industries consuming imported raw materials. A control board was created which is officially designated "uberwasungsstelle fur Papier." These boards are invested with dictatorial powers similar to those which existed during the war. They may impose restrictions on output, prescribe the prices and prohibit establishment of new concerns. They grant permits for importation of raw materials and their attestations enable importers to obtain the Foreign exchange with which to pay for their imports.

A movement to save raw materials, also sponsored by the German Government, is afoot in all branches and subdivisions of business to make the best of the available raw materials and to prevent waste in all manufacturing and commercial activities. In the paper industry special attention has been centered on waste paper. Not only is old paper stock being added to new cellulosic material in increased volume wherever possible, but means are discussed to make the existing supply go farther by prohibition of all such treatment and finish of paper and board which renders it unfit for use in papermaking. This, of course, would adversely affect all such processing as metalizing, tarring, coating with rubber, paraffine, asphalt, etc.

## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 19, 1934.

Demand for the various grades of paper has quieted down somewhat, due to some extent to the near approach of the inventory period. Sales forces of the leading paper organizations are planning for a strenuous campaign for orders in the forthcoming year. Prices are generally holding to schedule.

The position of the newsprint paper market is gradually improving. During November the total North American production amounted to 346,271 tons. Shipments from the United States and Canada totalled 341,393 tons. Stocks at United States and Canadian mills at the end of November are reported at 64,913 tons.

Steadiness prevails in the fine paper market. Prices are maintained at formerly quoted levels. Tissues are still moving in good volume. The coarse paper market is moderately active. Specialties are in persistent request. The paper board market is rather quiet at present, although the outlook for 1935 is promising.

### Mechanical Pulp

The ground wood pulp market continues to mark time. Production of mechanical pulp in North America and abroad is being maintained in sufficient volume to take care of current requirements. Accumulations at the mills are not excessive. The price situation is steady and unchanged.

### Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory for the time of year. Demand for the various domestic and foreign grades is moderately active. Supplies are moving into consumption in fairly heavy volume. Bleached sulphite is still quoted at from $2.75 to $2.85 per 100 pounds, on dock, Atlantic ports.

### Old Rope and Bagging

The old rope market is showing some signs of improvement. Imported old manila rope is firmer, while domestic old manila rope is steady. Small mixed rope is fairly active. The bagging market is irregular. Scrap bagging is arousing more interest. Gunny bagging is listless. Roofing bagging is displaying strength.

### Rags

Trading in the domestic rag market is fairly brisk. New cotton rags are going forward in better volume. Export demand for No. 1 white shirt cuttings is well sustained. Roofing stock is quite buoyant for the season. No radical changes have transpired in the imported rag market and quotations are still nominal.

### Waste Paper

The New York Code Authority for the Waste Paper Trade has tendered its resignation to the National Recovery Administration, due to alleged failure of the Government and its agencies to enforce the Waste Paper Emergency Order. Despite the listless demand for paper stock, however, the minimum prices on the lower grades are still in effect.

### Twine

Business in the local twine market is holding up fairly well and there are still some rush orders for holiday requirements around. Demand during the last few months is reported to have been well ahead of the corresponding period last year. The price situation is more stable than for some time past.

---

## On the Origin of Paper

"On the Irigin of Paper" by Andre Blum, translated from the French by Harry Miller Lydenberg, director of the New York Public Library, has just been issued by the R. R. Bowker Company, 62 West 45th street, New York, price $2.00.

This work sets forth in brief compass and with a clarity of style the latest findings of scholarly research in the history of the coming of paper into European use.

Under continuing difficulties paper made its way into bookmaking, handicapped by scarcity of materials, the opposition of parchment makers and general prejudice against it; but its increasing use permitted a cheap diffusion of works whose wide-spread availability marked a new era in civilization.

Step by step, from country to country Mr. Blum traces the earliest use of paper in Europe, and each statement or date is authoritatively documented. The reference list will be of value to other scholars.

Mr. Lydenberg, director of the New York Public Library, who has translated the book for English readers, has for years made the history of paper and the preservation of printed material a matter of his special study.

The volume is 64 pages, printed on special Archer paper, format by Robert Josephy.

---

## North American Pulp Corp. Formed

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., December 14, 1934—Incorporation of the North American Pulp and Paper Corporation, Limited at Victoria, B. C., has been announced. The company, which carried on business as dealers and manufacturers of paper and by-products, is capitalized at $75,000. It has its registered offices at 417 Rogers building, 470 Granville street, Vancouver, B. C.

---

## pH Testing by the Indicator Strip Method

A leaflet of more than ordinary interest entitled "pH Testing by the Indicator Strip Method" has just been issued by Pfaltz & Bauer, Inc. This describes a method of pH testing which avoids all difficulties met with in testing highly colored, viscous, turbid and semi-solid mediums.

# Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 19, 1934.

BLANC FIXE.—Steadiness prevails in the blanc fixe market. Prices are holding to formerly quoted levels. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Contract shipments are moving in fairly good volume. Prices continue steady. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is marking time. Domestic standard ground is quoted at 9¼ and finely ground at 10 cents per pound; while Argentine standard ground is offered at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is moderately active. Prices are holding to schedule without difficulty. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is fairly active. The contract movement is well up to average. Imported china clay is still quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Conditions in the chlorine market are fairly satisfactory. The contract movement is normal. Prices continue steady and unchanged. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is firmer. Paper making gum rosin is quoted at $4.50 and FF wood rosin at $4.30 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is brisk. Prices are holding to schedule. Salt cake is quoted at from $12 to $14 and chrome salt cake at from $12 to $12.50 per ton, at works. Imported salt cake is selling at from $12 to $12.50 per ton, on dock.

SODA ASH.—The soda ash market is displaying strength. The contract movement is fairly heavy. Prices are well sustained. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Trading in the starch market is fairly active for the time of year. Shipments against contract are moving freely. Special paper making starch is still quoted at $3.57 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The Sulphate of alumina market is exhibiting strength. Prices remain unchanged. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

# Market Quotations

## Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers | 6.50 | @ | — |
| Bonds | 6.00 | @ | — |
| Index | 6.00 | @ | — |
| Writings— | | | |
| Extra Superfine | 6.50 | @ | — |
| Superfine | 6.25 | @ | — |
| Tub sized | 5.75 | @ | — |
| Engine sized | 5.50 | @ | — |
| Book, Cased— | | | |
| S. & S. C. | 5.35 | @ | 5.75 |
| S. & S. C. Litho. | 5.60 | @ | 6.00 |
| M. F. | 5.10 | @ | 5.50 |
| Coated and Enamel | 5.90 | @ | 6.55 |
| Coated Litho | 5.90 | @ | 6.55 |
| Tissues—Per Ream— | | | |
| White No. 1 | .82½ | @ | .85 |
| White No. 2 | .67½ | @ | — |
| Anti-Tarnish M. G. only | 1.00 | @ | — |
| Colored | .85 | @ | — |
| Kraft | .70 | @ | — |
| Manila | .67½ | @ | .70 |
| Manila— | | | |
| No. 1 Jute | 9.00 | @ | 9.25 |
| No. 2 Jute | 7.75 | @ | 8.50 |
| No. 1 Wood | 4.00 | @ | 5.25 |
| No. 2 Wood | 3.50 | @ | 4.00 |
| Butchers | 4.00 | @ | 4.50 |
| Fibre Papers— | | | |
| No. 1 Fibre | 4.25 | @ | 5.50 |
| No. 2 Fibre | 4.00 | @ | 4.75 |
| Common Bogus | 1.50 | @ | 3.00 |
| Screenings | 2.50 | @ | 3.50 |
| Glassine— | | | |
| Bleached | .11 | @ | — |
| Unbleached | .09 | @ | — |

(The following Quotations are Delivered New York)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Roll, contract | 40.00 | @ | — |
| Rolls, spot | 40.00 | @ | — |
| Sheets | 45.00 | @ | — |
| Kraft— | | | |
| No. 1 Domestic | 4.75 | @ | 5.00 |
| No. 2 Domestic | 3.87½ | @ | — |
| Southern | 3.87½ | @ | — |
| Boards—per ton— | | | |
| News | 40.00 | @ | 45.00 |
| Chip | 37.50 | @ | 40.00 |
| Sgl. Mla. Ll. Chip | 47.50 | @ | 52.50 |
| Jute Lined Chip | 47.50 | @ | 52.00 |
| White Patent Coated | 60.00 | @ | 65.00 |
| Binders Boards | 67.00 | @ | 75.00 |

## Mechanical Pulp

(On Dock, Atlantic Ports)

| | | | |
|---|---|---|---|
| No. 1 Imported— | | | |
| Moist | 22.00 | @ | 24.00 |
| Dry | 23.00 | @ | 24.00 |
| (F.o.b. Mill) | | | |
| No. 1 Domestic and Canadian | 20.00 | @ | 26.00 |

## Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

| | | | |
|---|---|---|---|
| Bleached Sulphite (Domestic and Foreign)— | | | |
| Division 1 | 2.85 | @ | —* |
| Division 2 | 2.80 | @ | —* |
| Division 3 | 2.75 | @ | —* |
| Prime Qualities— | | | |
| Class 1. All Prime Easy Bleaching | 2.25 | @ | —* |
| Other Than Easy Bleaching— | | | |
| Class 2. Higher Than Standard | 2.20 | @ | —* |
| Class 3. Standard | 2.15 | @ | —* |
| Class 4. Lower than Standard | 2.10 | @ | — |
| (On Dock, Atlantic Ports) | | | |
| Kraft No. 1 | 1.65 | @ | 1.75 |
| Kraft No. 2 | 1.50 | @ | 1.60 |
| (F.o.b. Pulp Mill) | | | |
| Kraft Domestic | 1.60 | @ | 2.25 |
| (Delivered) | | | |
| Soda Bleached | 2.50 | @ | — |

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

## Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | 5.75 | @ | 6.00 |
| Silesias No. 1 | 3.75 | @ | 4.00 |
| New Unbleached | 6.25 | @ | 6.50 |
| New Soft Blacks | 3.00 | @ | 3.25 |
| Blue Overall | 3.50 | @ | 3.75 |
| Fancy | 2.50 | @ | 2.75 |
| Washables | 1.75 | @ | 2.00 |
| Mixed Khaki Cuttings | 3.00 | @ | 3.25 |
| O. D. Khaki Cuttings | 3.75 | @ | 4.00 |
| Men's Corduroy | 1.50 | @ | 1.75 |
| New Mixed Blacks | 2.50 | @ | 2.75 |

Old Rags

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | 3.00 | @ | 3.50 |
| Miscellaneous | 2.75 | @ | 3.25 |
| White, No. 2— | | | |
| Repacked | 1.75 | @ | 2.25 |
| Miscellaneous | 1.50 | @ | 1.75 |
| Thirds and Blues— | | | |
| Repacked | 1.50 | @ | 1.75 |
| Miscellaneous | 1.25 | @ | 1.50 |
| Black Stockings | 2.50 | @ | 3.00 |
| Roofing Rags— | | | |
| No. 1 | 1.10 | @ | 1.25 |
| No. 2 | .80 | @ | .85 |
| No. 3 | .70 | @ | .75 |
| No. 4 | .65 | @ | .70 |
| No. 5A | .60 | @ | .65 |

## Foreign Rags

New Rags

| | | | |
|---|---|---|---|
| New Dark Cuttings | 1.60 | @ | 1.70 |
| New Mixed Cuttings | 1.75 | @ | 1.85 |
| New Light Silesias | 3.75 | @ | 4.00 |
| Light Flannelettes | 3.75 | @ | 4.00 |
| Unbleached Cuttings | 6.50 | @ | 6.75 |
| New White Cuttings | 6.50 | @ | 6.75 |
| New Light Oxfords | 3.25 | @ | 3.50 |
| New Light Prints | 2.75 | @ | 3.00 |

Old Rags

| | | | |
|---|---|---|---|
| No. 1 White Linens | 7.50 | @ | 8.00 |
| No. 2 White Linens | 6.50 | @ | 7.00 |
| No. 3 White Linens | 4.50 | @ | 5.00 |
| No. 4 White Linens | 2.25 | @ | 2.50 |
| No. 1 White Cotton | 4.25 | @ | 4.75 |
| No. 2 White Cotton | 3.25 | @ | 3.75 |
| No. 3 White Cotton | 2.50 | @ | 2.75 |
| No. 4 White Cotton | 1.90 | @ | 2.15 |
| Extra Light Prints | 2.00 | @ | 2.25 |
| Ord. Light Prints | 1.75 | @ | 1.85 |
| Med. Light Prints | 1.55 | @ | 1.65 |
| Dutch Blue Cottons | 1.75 | @ | 1.85 |
| French Blue Linens | 2.30 | @ | 2.40 |
| German Blue Linens | 2.15 | @ | 2.25 |
| German Blue Cottons | 1.70 | @ | 1.80 |
| Checks and Blues | 1.30 | @ | 1.40 |
| Linsey Garments | 1.40 | @ | 1.60 |
| Dark Cottons | 1.00 | @ | 1.10 |
| Old Shopperies | .95 | @ | 1.00 |
| New Shopperies | .90 | @ | 1.00 |
| French Blues | 1.70 | @ | 1.80 |

## Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | 1.50 | @ | 1.60 |
| Domestic | 1.40 | @ | 1.50 |
| Wool Tares, light | 1.20 | @ | 1.30 |
| Wool Tares, heavy | 1.20 | @ | 1.30 |
| Bright Bagging | 1.15 | @ | 1.25 |
| Manila Rope— | | | |
| Foreign | 1.85 | @ | 2.00 |
| Domestic | 1.75 | @ | 2.00 |
| Small Mixed Rope | 1.10 | @ | 1.35 |
| New Burlap Cut | 2.00 | @ | 2.25 |
| Hessian Jute Threads— | | | |
| Foreign | 2.60 | @ | 2.75 |
| Domestic | 2.80 | @ | 3.00 |

## Old Waste Papers

(F. o. b. New York)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Envelope Cuttings | 2.70 | @ | 2.80 |
| Ordinary Hard White No. 1 | 2.15 | @ | 2.25 |
| Hard White No. 2 | 1.95 | @ | 2.05 |
| Soft White No. 1 | 1.85 | @ | 1.95 |
| Flat Stock— | | | |
| Stitchless | .65 | @ | .75 |
| Over issue Mag. | .65 | @ | .75 |
| Solid Flat Book | .55 | @ | .60 |
| Crumpled No. 1 | .40 | @ | .45 |
| Solid Book Ledger | 1.50 | @ | 1.65 |
| Ledger Stock | 1.00 | @ | 1.10 |
| New B. B. Chips | .30 | @ | .35 |
| Manilas— | | | |
| New Env. Cut | 1.70 | @ | 1.80 |
| New Cuttings | 1.35 | @ | 1.45 |
| Print | Nominal | | |
| Bogus Wrapper | .40 | @ | .50 |
| Container | Nominal | | |
| Old Kraft Machine— | | | |
| Compressed bales | 1.10 | @ | 1.20 |
| News— | | | |
| No. 1 White News | 1.20 | @ | 1.30 |
| Strictly Overissue | .65 | @ | .70 |
| Strictly Folded | .42½ | @ | .50 |
| No. 1 Mixed Paper | .32½ | @ | .40 |

# ENGLISH ECCO CLAYS CLAYS

ECCO CLAYS TRADE MARK

*Uniform—Superior—Dependable*

**ENGLISH CHINA CLAYS SALES CORPORATION**

**551 FIFTH AVENUE, NEW YORK CITY**

**Tons of paper saved every month!**

In one large New England mill, the superintendent advises that their save-alls now have no trace of slime. Previously these machines would be badly slime-coated. But, now that the entire system is given periodic cleanings with MAGNUS SLIME REMOVER, they save many tons of paper every month. For the paper comes through so clean when the machines are started up each week, there is no waste.

The effectiveness of MAGNUS SLIME REMOVER and the remarkable savings resulting from its use, are items well worthwhile investigating. Write today for data sheets giving full information about this efficient cleansing agent. Or, we will gladly send a barrel of MAGNUS SLIME REMOVER to you on 30 days' trial. Our money-back guarantee protects you.

**MAGNUS CHEMICAL COMPANY**
*Manufacturers of Cleaning Materials*
**24 South Avenue Garwood, N. J.**

**Magnus SLIME REMOVER**

***Best By Test***

**A NEW EDGE DEVELOPED BY**

## Philadelphia Felt Co.

Cylinder Top
Bottom Wet Felts

**NONCURLING** **NONRAVELING**

The edging and stitching is always an addition to and never becomes a part of the felt, hence

**NO SLACK** **NO TIGHT EDGES**

always
open and free filtering from

**EDGE** to **EDGE**

## Philadelphia Felt Company

**FRANKFORD, PHILADELPHIA, PENNA.**
ROBERT M. GUIE, *Sales Manager*

## J. Andersen & Co.

*Selling Agents*
21 East 40th Street
New York

CHEMICAL & MECHANICAL PULP

**Kraft Pulp**
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanaftarden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsvikan, Sweden

**Bleached Sulphite**
KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Vllach, Austria

**Unbleached Sulphite**
AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bruckbava, Czecho-Slovakai
SVANÖ AKTIEBOLAG
Svanö, Sweden

### Twines

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Coarse Polished— | | | |
| India | .11¼ | @ | .13¾ |
| Belg. White Hemp | .12¼ | @ | .15¾ |
| India Compress | .11¼ | @ | .12¼ |
| Fine Polished— | | | |
| Fine India | .16 | @ | .20 |
| Special | .16 | @ | .18 |
| B. C. | .25½ | @ | .27½ |
| Unpolished— | | | |
| Box | .10 | @ | .10½ |
| Paper Makers | .07 | @ | .11½ |
| Tube Rope | .08 | @ | .13½ |
| Wall Paper | .09 | @ | .12½ |
| Wrapping | .12 | @ | .17 |
| Special | .12 | @ | — |
| Soft Fiber Rope | .10¼ | @ | .10¾ |

## CHICAGO

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Rag Bond | .12 | @ | .50 |
| Water Marked Sulphite Bond | .06¾ | @ | .11 |
| Sulphite Bond | .05½ | @ | .11 |
| Superfine Writing | .18 | @ | .24 |
| No 1 M. F. Book | .06½ | @ | .07¾ |
| No. 2 M. F. Book | .05¾ | @ | .06¾ |
| No 1 S.&S.C. Book | .06¾ | @ | .07¾ |
| No 2 S.&S.C. Book | .05¾ | @ | .06½ |
| Coated Book | .07 | @ | .12 |
| Coated Label | .07 | @ | .08½ |
| No. 1 Manila | .04¾ | @ | .05¾ |
| No. 1 Fibre | .04¾ | @ | .05¾ |
| No. 2 Manila | .04¾ | @ | .04¾ |
| Butcher's Manila | .03¾ | @ | .03¾ |
| No. 1 Kraft | 4.75 | @ | 5.00 |
| Southern Kraft | 3.88 | @ | 4.25 |
| No. 2 Kraft | 3.88 | @ | 4.25 |
| Wood Tag Boards | .04¾ | @ | .06¾ |
| Sulphite Screenings | .03 | @ | .03¾ |
| Manila Tissue | .05¾ | @ | .07 |
| White Tissue | .07 | @ | .09 |

(Delivered Central Territory)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls, contract | 41.00 | @ | — |
| Sheets, open | 46.00 | @ | 51.80 |
| Boards, per ton— | | | |
| Plain Chip | 46.50 | @ | — |
| Solid News | 50.00 | @ | — |
| Manila Lined Chip | 55.00 | @ | — |
| Patent coated | 65.00 | @ | — |
| Container Lined— | | | |
| 85 Test, per 1000 sq. ft. | | | 1.70 |
| 100 Test, per 1000 sq. ft. | | | 1.85 |

### Old Papers

(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 White Envelope cuttings | 1.70 | @ | 2.00 |
| No. 1 Hard White | 1.40 | @ | 1.65 |
| No. 1 Soft White | 1.25 | @ | 1.50 |
| Ledger & Writings | .70 | @ | .80 |
| Solid Books | .60 | @ | .70 |
| Blanks | 1.00 | @ | 1.05 |
| Krafts | .80 | @ | .90 |
| New Kraft Cuts | 1.20 | @ | 1.30 |
| Manila Env. Cuts | 1.25 | @ | 1.30 |
| Ex. No. 1 Manila | .90 | @ | 1.00 |
| Print Manila | .50 | @ | .55 |
| Overissue News | .60 | @ | .70 |
| Old Newspapers— | | | |
| No. 1 | .50 | @ | .55 |
| Mixed Papers— | | | |
| No. 1 | .30 | @ | .35 |
| Rooning Stocks— | | | |
| No. 1 | 30.00 | @ | — |
| No. 2 | 28.00 | @ | — |

## PHILADELPHIA

### Paper

(Delivered Philadelphia)

| | | | |
|---|---|---|---|
| Bonds | .05-9/10 | @ | .38 |
| Ledgers | .06 9/10 | @ | .40 |
| Writings— | | | |
| Fine No. 3 | .05 | @ | .06 |
| Superfine | .10 | @ | .18 |
| Extra Fine | .15 | @ | .26 |
| Fine | .15 | @ | .26 |
| Fine, No. 2 | .10 | @ | .25 |
| Book, M. F. | .05¼ | @ | .06¼ |
| Book, S. S. & C. | .05 | @ | .07½ |
| Book, Coated | .06½ | @ | .09 |
| Coated Lithograph | .06¾ | @ | .08½ |
| Label | .07 | @ | .11 |
| No. 1 Jute Manila | 6.25 | @ | — |
| Manila Sul., No. 1 | 5.25 | @ | — |
| Manila No. 2 | 3.00 | @ | — |
| No. 1 Kraft | 5.00 | @ | — |
| Southern Kraft | 4.75 | @ | — |
| Common Bogus | .03 | @ | .04½ |
| News Print Rolls | 46.00 | @ | 55.00 |
| Straw Board | 40.00 | @ | 45.00 |
| News Board | 50.00 | @ | — |
| Chip Board | 45.00 | @ | — |
| Wood Pulp Board | 70.00 | @ | 85.00 |
| Binder Boards— | | | |
| No. 1, per ton | 75.00 | @ | 80.00 |
| No. 2, per ton | 70.00 | @ | 75.00 |
| Carload lots | 65.00 | @ | 70.00 |
| Tarred Felts— | | | |
| Regular | 52.25 | @ | 54.25 |
| Slaters (per roll) | .84 | @ | .94 |
| Best Tarred, 1-ply (per roll) | 1.95 | @ | 2.10 |
| Best Tarred, 2-ply (per roll) | 1.50 | @ | 1.60 |
| Best Tarred, 3-ply | 2.00 | @ | 2.25 |

### Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1. | .03½ | @ | .04 |
| New White, No. 2. | .02½ | @ | .04 |
| Light Silesias | .02½ | @ | .03 |
| Silesias, No. 1 | .03 | @ | .03½ |
| Black Silesias, soft | .02½ | @ | .03 |
| New Unbleached | .05 | @ | .05½ |
| Washable, No. 1 | .01½ | @ | .02 |
| Blue Overall | .03½ | @ | .04 |
| Cottons—According to grades— | | | |
| Washable, No. 2 | .02½ | @ | .03 |
| New Blue | .01½ | @ | .03 |
| Fancy | .01½ | @ | .03 |
| New Black Soft | .02 | @ | .04 |
| New Light Seconds | .01½ | @ | .02 |
| New Dark Seconds | 1.50 | @ | 1.75 |
| Khaki Cuttings— | | | |
| No. 1 O.D. | .03 | @ | .04 |
| No. 2 Mixed | .03 | @ | .04 |
| Corduroy | .02 | @ | .03 |
| New Canvas | .03½ | @ | .04½ |
| New Black Mixed | .02½ | @ | .03½ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 2.50 | @ | 3.50 |
| Miscellaneous | 1.75 | @ | 2.25 |
| M. G. | 3.00 | @ | 3.75 |
| Thirds and Blues— | | | |
| Miscellaneous | 1.00 | @ | 1.50 |
| Repacked | 1.50 | @ | 2.00 |
| Black Stockings (Export) | 2.00 | @ | 3.50 |
| Roofing Stock— | | | |
| Foreign No. 1 | .50 | @ | .75 |
| Repacked | .70 | @ | .85 |

### Bagging

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign | 1.25 | @ | 1.50 |
| Domestic | 1.50 | @ | 1.75 |
| Manila Rope | 2.00 | @ | 2.25 |
| Sisal Rope | 1.25 | @ | 1.50 |
| Mixed Rope | 1.00 | @ | 1.10 |
| Scrap Burlaps— | | | |
| No. 1 | 1.25 | @ | 1.50 |
| No. 2 | .80 | @ | 1.00 |
| Wool Tares, heavy | 2.75 | @ | — |
| Mixed Strings | 1.15 | @ | 1.45 |
| No. 1 New Light Burlap | 2.25 | @ | 2.50 |
| New Burlap Cuttings | 2.00 | @ | 2.25 |

### Old Papers

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.25 | @ | 2.30 |
| No. 2 Hard White | 1.90 | @ | 2.00 |
| No. 1 Soft White | 1.80 | @ | 1.85 |
| No. 2 Soft White | 1.25 | @ | 1.30 |
| No. 1 Mixed | — | @ | .75 |
| Solid Ledger Stock | 1.50 | @ | 1.60 |
| Writing Paper | 1.00 | @ | 1.10 |
| No. 1 Books, heavy | .55 | @ | .60 |
| No. 1 New Manila | 1.35 | @ | 1.40 |
| Print Manila | .50 | @ | .60 |
| Container Manila | .45 | @ | .50 |
| Old Kraft | 1.15 | @ | 1.20 |
| No. 1 Mixed Paper | .32½ | @ | — |
| Straw Board Chip | .30 | @ | — |
| Binders Board Chip | .30 | @ | — |
| Corrugated Board | .50 | @ | — |
| Overissue News | .60 | @ | — |
| Old Newspapers | .42½ | @ | — |

## BOSTON

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers— | | | |
| Sulphite | .06 | @ | .12½ |
| Rag Content | .12 | @ | 30 |
| All Rag | 36 | @ | 52½ |
| Bonds— | | | |
| Sulphite | .07¼ | @ | .11 |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .65 |
| Writings | .06½ | @ | .20 |
| Superfines | .11 | @ | .31 |
| Book, Super | .06 | @ | .09 |
| Book M. F. | .05½ | @ | .08½ |
| Book Coated | .08½ | @ | .18 |
| Coated Litho | .09 | @ | .12 |
| Label | .09½ | @ | .15 |
| Jute Manila No. 1 | .11 | @ | .13 |
| Manila, Sul. No. 1 | .04¾ | @ | .06½ |
| Manila, Sul. No 2 | .03¾ | @ | .04½ |
| No. 1 Kraft | .04¾ | @ | .05 |
| No. 2 Kraft | .03¾ | @ | .04½ |
| (F. o. b. Boston) | | | |
| Southern Kraft | .03¾ | @ | .04½ |
| (F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.) | | | |
| Common Bogus | .02 | @ | .02¾ |
| (Delivered New England points) | | | |
| News Print, rolls | 44.50 | @ | — |
| Straw Board, rolls | .009 | — | @35.00 |
| Straw Board in Sheets, basis 35s to 70s | | — | @40.00 |
| Filled News Board | 40.00 | @ | 45.00 |
| Chip Board | 37.50 | @ | 40.00 |
| Chip Board (Creasing) | 37.50 | @ | 40.00 |
| Single Manila Lined Chip | 47.50 | @ | 52.50 |
| Single White, Patent Coated News Board (Bender) | 57.50 | @ | 65.00 |
| Wood Pulp Board | 70.00 | @ | 75.00 |
| Binder Boards (Standard Grade) | 67.00 | @ | 75.00 |

### Old Papers

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.00 | @ | 2.25 |
| No. 1 Soft White | 1.75 | @ | 2.00 |
| No. 2 Mixed | .80 | @ | .85 |
| Solid Ledger Books | 1.75 | @ | — |
| Overissue Ledger Stock | 1.15 | @ | 1.30 |
| Mixed Ledgers | .95 | @ | 1.05 |
| No. 1 Books, heavy | .80 | @ | .85 |
| No. 1 Books, light | .65 | @ | .75 |
| Crumpled Stitchless Book Stock | .50 | @ | .60 |
| Manila Env. Cuttings | 1.25 | @ | 1.30 |
| No. 1 Old Manila | .65 | @ | .70 |
| White Blank News | 1.10 | @ | 1.15 |
| No. 1 Kraft | 1.00 | @ | 1.05 |
| No. 1 Mixed Papers | .32½ | @ | — |
| Print Manila | .45 | @ | .50 |
| Overissue News | .50 | @ | .55 |
| Old Newspapers | .42½ | @ | .45 |
| Box Board Chips | .. | @ | .25 |
| Corrugated Boxes | .32½ | @ | .40 |
| Screening Wrappers | .50 | @ | .60 |

### Bagging

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Manila Rope— | | | |
| Foreign | 1.75 | @ | 1.90 |
| Domestic | 1.90 | @ | 2.00 |
| Transmission Rope | .90 | @ | 1.00 |
| Mixed Strings | .17½ | @ | .30 |
| Jute Rope | 1.35 | @ | 1.40 |
| Jute Carpet Threads | .65 | @ | .70 |
| Gunny No. 1— | | | |
| Foreign | 1.50 | @ | 1.60 |
| Domestic | 1.15 | @ | 1.20 |
| Bleachery Burlap | 4.00 | @ | 4.50 |
| Scrap Burlap | 1.05 | @ | 1.10 |
| Scrap Sisal | 1.00 | @ | 1.10 |
| Scrap Sisal for Shredding | 1.10 | @ | 1.25 |
| Wool Tares, heavy | 1.25 | @ | 1.30 |
| New Burlap Cuttings | 1.45 | @ | 1.50 |
| Australian Wool Pouches | 2.00 | @ | 2.25 |
| Heavy Baling Bagging | 1.40 | @ | 1.50 |
| Paper Mill Bagging | .90 | @ | 1.10 |
| Bagging No. 2 | .50 | @ | .55 |

### Domestic Rags (New)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints | .01¾ | @ | .02 |
| New White No. 1. | .05½ | @ | .06 |
| New White No. 2. | .03½ | @ | .04 |
| Silesias No. 1 | .04 | @ | — |
| New Black Silesias | .02½ | @ | .03 |
| New Unbleached | .05½ | @ | .06 |
| Blue Cheviot | — | @ | 4.65 |
| Fancy | — | @ | .02¼ |
| Washable | .02¼ | @ | — |
| Cottons—According to grades— | | | |
| Blue Overalls | — | @ | .03¼ |
| New Black soft | .04 | @ | .04½ |
| Khaki Cuttings | .03¼ | @ | .03½ |
| O. D. Khaki | .03 | @ | .03¼ |
| Corduroy | .01¾ | @ | .04 |
| New Canvas | — | @ | .05 |
| B.V.D. Cuttings | — | @ | .06¼ |

### Domestic Rags (Old)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Canvas | .04½ | @ | |
| White No. 1— | | | |
| Repacked | — | @ | 3.00 |
| Miscellaneous | 2.50 | @ | 2.75 |
| White No. 2— | | | |
| Repacked | 2.00 | @ | 2.75 |
| Miscellaneous | 2.00 | @ | 2.25 |
| Twos and Blues | 1.25 | @ | 1.50 |
| Thirds and Blues | | | |
| Repacked | 2.00 | @ | 2.75 |
| Miscellaneous | 2.00 | @ | 2.25 |
| Black Stockings | 2.50 | @ | 3.00 |
| Roofing Stock | | | |
| No. 1 | .70 | @ | .75 |
| No. 2 | .65 | @ | .70 |
| No. 3 | .55 | @ | .60 |

### Foreign Rags

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Dark Cottons | .85 | @ | .95 |
| New White Shirt Cuttings | 5.50 | @ | 6.00 |
| Dutch Blues | 2.00 | @ | 2.50 |
| New Checks & Blues | 2.50 | @ | 3.00 |
| Old Fustians | 1.55 | @ | 1.60 |
| Old Linsey Garments | 1.25 | @ | 1.35 |

## TORONTO

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bond— | | | |
| No. 1 Sulphite | .10¼ | @ | — |
| No. 2 Sulphite | .08½ | @ | — |
| No. 1 Colored | .10¼ | @ | — |
| No. 2 Colored | .09 | @ | .10 |
| Ledgers (sulphite) | | | |
| Ledgers, No. 1 | .34½ | @ | — |
| Ledgers, No. 2 | .25½ | @ | — |
| Writing | .09 | @ | .09½ |
| Book— | | | |
| No. 1 M. F. (Carloads) | 6.20 | @ | — |
| No. 3 M. F. (Carloads) | 5.70 | @ | — |
| No. 4 M. F. (carloads) | 4.75 | @ | — |
| No. 1 S. C. (carloads) | 6.65 | @ | — |
| No. 3 S. C. (carloads) | 6.20 | @ | — |
| No. 4 S. C. (carloads) | 5.20 | @ | — |
| No. 1 Coated and Litho | 12.00 | @ | — |
| No. 2 Coated and Litho | 10.50 | @ | — |
| No. 3 Coated and Litho | 9.50 | @ | — |
| Coated Printed | 14.00 | @ | — |
| Wrapping— | | | |
| Rag Brown | 4.25 | @ | — |
| White Wrap | 2.22½ | @ | — |
| "B" Manila | 4.75 | @ | — |
| No. 1 Manila | 5.25 | @ | — |
| Fiber | 5.25 | @ | — |
| Kraft, M. F. | 5.75 | @ | — |
| Kraft No. 2 | 5.25 | @ | — |

(F.O.B Cars Toronto)

| | | | |
|---|---|---|---|
| News per ton | | | |
| Rolls (contract) | 39.50 | @ | — |
| Sheets | 44.50 | @ | — |

### Pulp

(F. o. b. Mills)

| | | | |
|---|---|---|---|
| Ground Wood | 18.00 | @ | 40.00 |
| Sulphite easy bleaching | 40.00 | @ | — |
| Sulphite, news grade | 38.00 | @ | — |
| Sulphite, bleached | 50.00 | @ | 55.00 |
| Sulphate | 50.00 | @ | |

### Old Waste Paper

(In carload lots, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| Shavings | | | |
| White Env. Cut | 2.00 | @ | 2.30 |
| Soft White | 1.60 | @ | 1.90 |
| White Blk. News | 1.25 | @ | 1.40 |
| Book and Ledger— | | | |
| Flat Magazine and Book Stock (old) | .90 | @ | 1.00 |
| Light and Crumpled Book Stock | .80 | @ | .90 |
| Ledgers and Writings | 1.00 | @ | 1.05 |
| Manilas— | | | |
| New Manila Cut | 1.25 | @ | 1.50 |
| Printed Manilas | .70 | @ | .60 |
| Kraft | 1.25 | @ | 1.50 |
| News and Scrap— | | | |
| Strictly Overissue | .80 | @ | — |
| Strictly Folded | .60 | @ | — |
| No. 1 Mixed Paper | .50 | @ | — |

### Domestic Rags

(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| No. 1 White Shirt Cuttings | .06 | @ | .06¼ |
| Fancy Shirt Cuttings | .02¼ | @ | .02½ |

TISSUES

FINE PAPERS

SPECIALTIES

BAGS

KRAFT

ANILINE PRINTING

COATINGS

WRAPPINGS

GLASSINE

• Technical assistance coupled with practical experience and the most complete range of dyestuffs available. CALL ON US!

GDC

GENERAL DYESTUFF CORPORATION

230 FIFTH AVENUE, NEW YORK, N. Y.

PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-THIRD YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President. J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 15 West 47th Street, New York
Chicago Office: 123 West Madison St.

## TABLE OF CONTENTS

Record December Newsprint Output ..... 11
Premier Defends Action ..... 11
Wisconsin Paper Mill Activities ..... 12
Important Forestry Movement ..... 12
Speed Reducing and General Gearing ..... 12
Chicago Market Shows Strong Trend ..... 13
Unemployment Insurance ..... 13
Hawley Paper Co. Plan Approved ..... 13
Canadian Newsprint Output Ahead ..... 14
Philadelphia Paper Demand Steady ..... 15
Paper and Cordage Christmas Party ..... 15
Extensive Wood Operations in Maine ..... 15
Boston Paper Market Fairly Active ..... 16
Edward Savage Crocker Dead ..... 16
G. H. Mead Retires as Chairman ..... 16
Packaging Show to Be Held at Chicago ..... 18
George Paper & Specialty Co. Formed ..... 18
Indianapolis Reports Prospects Better ..... 21
Construction News ..... 22
Cameron Builds World's Largest Winder .... 23
Johns-Manville Corp. Lease Oswego Mill .... 23
Whitaker Paper Pays Dividend ..... 23
Editorial ..... 24
Brightening Prospects Increase With Year's Close ..... 24
May Build Pulp Mills in Northwest ..... 25
Argentine Imports Less Newsprint ..... 25
Weekly Production Ratio Report ..... 25
Technical Section
A Tentative Basis for Specifications On Wax Size ..... 27
Rapid Growing Trees ..... 29
Law of Patents for Chemists ..... 30
St. Helens Regains Blue Eagle Rights .... 30
The Bewoid Rosin Size Process ..... 31
Formation of Paper on the Fourdrinier Wire 32
Pulp and Paper Industry Literature Review 37
Imports of Paper and Paper Stock ..... 39
New York Market Review ..... 41
Miscellaneous Markets ..... 42
Market Quotations ..... 42

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 46-47

GOOD
# OPACITY
[No "Show-Thru"]

***Plus*** **whiteness and brightness can be obtained with . . . .**

**UNITED LITHOPONES**
**AT A VERY MODERATE COST!**

**UNILITH**
**(Regular)** *or*
**TIDOLITH**
**(Titanated)**

**Suitable for: book papers, catalog stocks, mimeographs, bonds, ledgers, wax papers, news, specialties, etc.**
**Definitely improves printing qualities; minimizes ageing, yellowing; prolongs wear of boxboards, etc.**

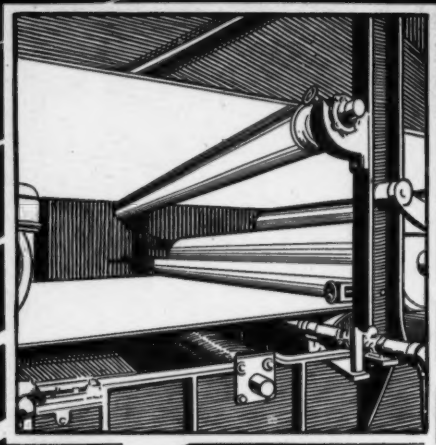
***A trial order will be convincing.***

**UNITED COLOR and PIGMENT CO., Inc.**
**Main Office and Plant: NEWARK, N. J.**

***Sales Offices, Representatives and Warehouses in:***

| | | | |
|---|---|---|---|
| *Boston* | *Cincinnati* | *San Francisco* | *Indianapolis* |
| *Pittsburgh* | *Seattle* | *Cleveland* | *Baltimore* |
| *Buffalo* | *Philadelphia* | *Detroit* | *Milwaukee* |
| *Chicago* | *Los Angeles* | *Dallas* | |

UNITED
LITHOPONES
UNILITH Standard ♦ TIDOLITH Titanated



## On Choosing the Right Felts

The right felt for your press has the right warp and woof for your job—the right nap—the right tensile strength — the right porosity — the right resiliency; high resistance to friction which means wearing quality.

The same rules apply to all your felts—top and bottom and others, regardless of the kind of paper you may make.

When you find such felts you have gone a long way towards maximum dehydration and minimum felting costs.

The Orr line is a quality line and a complete line. Consult an Orr representative and, between you, decide which Orr Felts will best meet your particular requirements; or write to

**THE ORR FELT AND BLANKET COMPANY**
PIQUA, OHIO

ORR FELTS